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# **AN ASSESSMENT OF THE STYLE AND PERFORMANCE OF SOUTH AFRICAN INSTITUTIONAL FUND MANAGERS**

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## ABSTRACT

This paper aims to expand on the growing area of fund style classification and benchmarking research in developed markets by extending such analyses to the South African context. Developed market research has indicated that very few managers follow any one 'style' but adopt blends of different styles, or purport to follow one style but in fact follow another in order to frame investor return expectations. The return implications of such style variation are significant as identified by Davis (2001) with an investor needing to be vigilant when engaging in manager selection. Furthermore, the prevalence of manager style misspecification requires more fund specific, customized benchmarking solutions in order to accurately assess manager performance.

A differentiating feature of this study is both the style indices used and the sample of fund manager return data in the South African context. The style indices used were sourced from A-DEX, which unlike those used in Scher and Muller (2005) comprise a greater sample of JSE listed companies and are fully tradable. Furthermore, the data sample compiled by RisCura Solutions (Pty) Ltd and contains returns from a total of sixty South African institutional fund managers. Prior research in both developed markets and particularly in the South African context have analysed unit trust returns rather than the performance of institutional managers. The current study analyses one of the largest samples of institutional manager return data in the South African context.

A returns-based style analysis was employed as in Sharpe (1988, 1992), diBartolomeo and Witkowski (1997) and Robertson, Firer and Bradfield (2000). The SWIX, VALUE 60 and MOMENTUM 60 style indices were selected as the generic specification for the factor model. Managers included in the sample of return data were classified as Value, Growth or Core by RisCura Solutions (Pty) Ltd based on their responses to the proprietary manager due diligence questionnaire. A recursive quadratic programming algorithm was applied to the return data in order to determine each manager's effective style mix. In addition, a passive style-based benchmark is constructed per fund so as to more accurately assess active fund performance relative to a passive style shadow portfolio.

Funds were classified into their specific style categories based on manager responses to due diligence questionnaires completed by RisCura Solutions (Pty) Ltd. The analysis indicated that 26 of the sample of 60 funds' actual styles deviated from their purported style bias. In addition, it is found that approximately 80% of mis-specified funds underperform their constructed passive style shadow over their respective investment periods. Those funds that outperformed their passive style shadow included ABSA Asset Management Value, Allan Gray Specialist Domestic Equity, Aylett Equity, Coronation Houseview Equity and ABSA Asset Management Core. Despite the limited statistical significance of the aforementioned outperformance, the economic benefit from being invested in these top performing funds over the investment period is apparent.

The results of the study provide evidence to suggest that style classification and the misspecification thereof have significant consequences for investors' return performance. The passive style indices used in this study are tradable and may be used to better enable practitioners to track the performance of a specific style and so benchmark the performance of their selected fund manager's products. An improvement in the benchmarking of fund manager performance coupled with an improvement in investors' understanding of any given fund's style exposure, will assist in allowing investors to better align manager incentives. This will assist in bringing about more efficient asset allocation on the part of the manager and in so doing, aid in maximizing realized returns.

## DECLARATION

I, David Moore, hereby declare that the work on which this thesis is based is my own original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other University. I empower the University to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.

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### **RisCura Solutions (Pty) Ltd**

*With offices in London, Cape Town, Johannesburg and Windhoek, RisCura is a premier independent financial analytics provider and investment consultant with significant expertise in Africa. RisCura services seven of Africa's ten largest pension funds that represent more than USD 115 billion AUM, as well as money managers who together represent over USD 5 billion in hedge fund AUM and PE committed capital.*

The author would like to thank A-DEX, specifically Mr Roland Rousseau for providing the required style indices with which to perform the required analysis.

### **A-DEX**

*A-DEX is acknowledged as being the established pioneer in applying Value and Momentum index research in the South African market with nearly 15 years of experience in both published and proprietary quantitative investment research in portfolio construction. A-DEX has designed an 'Index Toolbox' <sup>TM</sup> that allows for improved performance benchmarking, more efficient manager selection and smarter portfolio construction.*

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# 1 INTRODUCTION

## 1.1 BACKGROUND

It is common knowledge that an equity fund manager's specific investment philosophy determines to which assets investor funds will be allocated. The two most common investment styles namely, 'Value' and 'Growth', are quite different and offer differing return profiles. Their performance is dependent on the underlying securities chosen, the specific weighting allocated per security in portfolio and the behaviour of the listed equity market in general.

Managers who adhere to a 'Value' based investment philosophy select stocks based on their intrinsic value. More specifically, such managers believe that markets participants react irrationally to both good and bad news which may directly influence the share price of a certain company, resulting in its market price straying away from its fundamental intrinsic value. Where the market price is found to be lower than intrinsic value, this presents a strong buying opportunity to the value investor. Such investors would buy such stocks perceiving them to be underpriced and expect the stock price to eventually return to its intrinsic value allowing them to realise a profit.

Growth managers seek stocks whose earnings are expected to grow at an above average rate relative to that company's specific sector, or when compared to the market as a whole. This strategy can be closely linked to 'Momentum' based investing, which aims to maximize gains by investing in 'hot' stocks - those stocks which demonstrate upward trending price behaviour. Such upward trending price behaviour is often driven by above average earnings growth hence the association between the Growth and Momentum investment strategies.

Managers often market themselves and their respective funds in accordance with their investment philosophies.

*"Our philosophy is very simply to buy companies whose share price is less than their intrinsic value."* – Allan Gray<sup>1</sup>

*"Opportunities arise when market prices deviate from intrinsic value."* – Kagiso Asset Management<sup>2</sup>

However, developed market research by Sharpe (1988, 1992) and diBartolomeo and Witowski (1997) provide evidence to suggest that managers do not always adhere to their advertised investment philosophy. Such style drift can have significant consequences for the expected return profile of the investor should the broader macroeconomic climate suit a certain investment style relative to another.

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<sup>1</sup> Available on home page, <http://www.allangray.co.za>

<sup>2</sup> Available on home page, <http://www.kagisoam.com>

Employing a similar method to that applied in Sharpe (1988, 1992), this study aims to determine the prevalence of style misspecification amongst a broad sample of South African Institutional Equity Fund Managers. Furthermore, it aims to better benchmark manager performance through the construction of specific style-based benchmarks on a manager by manager basis. Such analysis aims to provide greater insight into investment behaviour of South African equity fund managers so as to enable investors, consultants and other industry participants to make better investment and performance monitoring decisions.

## **1.2 RESEARCH PROPOSITIONS**

This study aims to investigate the following research propositions:

Firstly, through the widely used technique of ‘returns based style analysis’ first presented in Sharpe (1988, 1992), assess the promised style of a sample of South African Institutional Funds. In so doing, this study aims to build on developed market research and further extend such analysis in emerging markets such as South Africa, where few studies with tradable style indices and an extensive sample of fund data have been completed. The analysis will yield an R-Square value per fund, per factor model constructed indicative of the goodness of fit of the constructed factor model using the tradable style indices. The constructed factor models per fund yield effective exposures to the style indices which then form the basis of assessing fund style compliance.

Such an analysis will provide the investor with an additional tool with which to monitor the style compliance of their chosen fund or manager.

Secondly, the aforementioned ‘returns based style analysis’ will be used to construct custom style benchmarks based on each fund’s effective style exposure as identified by their individual factor models over their respective investment periods. Such benchmarks will be used to determine whether or not the active fund has managed to outperform a passive equivalent with the same effective style constructed based on each fund’s exposure to the VALUE 60 and MOMENTUM 60 indices gross of fees. The active return, tracking error, R-Square and information ratio are calculated in order per fund relative to their custom style benchmarks in order to assess relative performance.

The construction of such specific style based benchmarks per fund will provide investors with evidence to suggest that in certain circumstances they themselves may be able to replicate the return profile of certain active funds with a high degree of accuracy using a combination of passive style and market indices. In so doing such an analysis may empower a potential investor to better their manager selection ability.

Thirdly, this study aims to provide investors with implicit evidence of a potential fee arbitrage. More specifically, investors in certain circumstances may be able to replicate or exceed the return performance of certain active managers at lower cost by acquiring similar style exposures

through the purchasing of publically traded passive style indices. Despite all performance figures in this study being presented gross of fees, where funds' underperform their constructed passive style shadows, it is implicit that an investor may be able to save significant costs by investing in passive indices instead of the often more expensive active manager. This potential for arbitrage is assessed by presenting and analysing the performance per fund in terms of active return, tracking error and information ratio relative to its constructed passive style shadow.

### **1.3 THESIS STRUCTURE**

The body of this paper is comprised of four major chapters, numbered 2 through 6.

Chapter 2 presents an overview of relevant research in both developed and emerging markets that apply returns-based analyses to determine both fund asset allocation and assess fund style classification. Thereafter, the ability of constructed factor based models to act as more efficient fund benchmarks are reviewed.

Chapter 3 outlines the dataset employed in the current study. Descriptive statistics are presented for both the style indices and fund return data series. All relevant data sources are discussed in detail, with any proposed data manipulations documented and potential biases prevalent considered.

Chapter 4 describes in detail the methodology of the returns-based style analysis to be performed. The analysis follows that of Sharpe (1988, 1992) whereby an asset factor model is constructed per fund by applying a quadratic programming algorithm.

Chapter 5 presents the findings of the returns-based style analysis. The approach provides both current and the average effective fund style along with a comparison of fund performance relative to the SWIX, the fund's target benchmark and the constructed passive style shadow portfolio.

Chapter 6 presents final conclusions and suggests areas for further study with Chapter listing all references. Appendix A presents a graphical presentation of the returns-based style analysis per manager, Appendix B provides an extract from the RisCura Solutions (Pty) Ltd manager due diligence questionnaire and Appendix C contains further analysis on several top performing funds.

## 2 LITERATURE REVIEW

### 2.1 STRUCTURE OF REVIEW

The literature review is divided into four parts.

Firstly, literature on the most common approaches used to perform style analysis on fund data was reviewed. Specific attention is paid to the process of returns based style analysis as performed in Sharpe (1988, 1992) and diBartolomeo and Witkowski (1997). The process of is reviewed in detail with both the advantages and disadvantages assessed relative to alternative techniques.

Secondly, research completed on the assessment and classification of a fund or manager style is reviewed in order to establish the prevalence of style misspecification. Literature reviewed is sourced from both developed and emerging markets. Following this, the motivations and/or reasons for such style misspecification are reviewed in order to better understand why managers may drift from their advertised investment philosophy.

Thirdly, the extension of returns based style analysis to create custom passive style based benchmarks per fund/manager is investigated. The developed market research first completed by Sharpe (1988, 1992) is reviewed coupled with more recent work in both developed and emerging markets.

Finally, other studies that perform different return based performance analyses on similar samples of data are reviewed.

### 2.2 STYLE ANALYSIS

As a result of the recent financial crisis, investors are becoming increasingly conscious of manager performance and the risk born by managers to achieve expected performance. Active managers are often assessed simply by whether or not they outperform their promised benchmark. However, such performance assessment is too narrow and only return focused not taking into account the associated risk exposure required by the manager to generate such returns. Therefore, the questions often asked by investors are simply, “What is the nature of the risk exposure undertaken by the manager in order to outperform the benchmark, and am I as an investor happy with such a risk exposure?”<sup>1</sup> Tools developed to assist investors determine such risk exposures include style analysis.

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<sup>1</sup>*The Handbook of Equity Style Management, Chapter 1: Style Analysis: Asset Allocation and Performance Management.*

There are two distinct forms of style analysis (1) Portfolio based style analysis and (2) Returns based style analysis.

### **2.2.1 PORTFOLIO BASED STYLE ANALYSIS**

This approach also termed the ‘characteristics based approach’ aims to understand the performance of a fund manager by closely examining the composition of his/her portfolio by comparing its characteristics to that of the target benchmark. Commonly used characteristics include the market to book ratio, price to earnings ratio, dividend yield and sector classification per holding. These characteristics are averaged over the investment period and the return for exposure to each determined.

In order for this form of style analysis to be effective, intimate knowledge of the holdings of both the fund and the benchmark is required, which may not always be easily attainable. Corielli and Meucci (2004) concur with these sentiments, indicating that it is often the case that the asset exposures and details of funds’ holdings are only known in sufficient detail for certain asset classes in developed markets. The work of Rekenhaller, Gambera and Karlson (2006) cite the twin issues of the timeliness and cost of accumulating and tracking detailed portfolio based data as obstacles to the successful implementation of the characteristics based approach to style analysis.

Another potential problem with this approach is the subjective judgement required to group characteristics in order to define a specific management style. These subjective judgements make comparison of a fund’s style over time ineffective, especially where specific portfolio holdings may operate in a range of market sectors and geographies making classification complex.

Given the several aforementioned obstacles inhibiting the easy implementation of a characteristics based approach, the modern finance world has sought to develop a cheaper, more practical substitute approach – Returns based style analysis.

### **2.2.2 RETURNS BASED STYLE ANALYSIS**

Unlike the Portfolio based style analysis approach, Returns based style analysis requires far less information on the composition of the portfolio under examination. As in Sharpe (1988, 1992), multifactor models are commonly used to perform returns based style analysis. The returns of the fund are analysed with reference to a set of style based explanatory factors which aim to explain the maximum amount of variation in the fund’s returns over the analysed period.

As indicated in de Rooy, Nijman & ter Horst (2004) these factors are often the returns on several factor or benchmark portfolios, such as value, growth, small cap, momentum, country, or sector portfolios. The approach determines the mimicking portfolio of fund returns, passive

indices or other investment opportunities with positive portfolio weights, i.e., the positively weighted style portfolio that is closest to the returns of the fund in a least squares sense.

Returns based style analysis requires little information, fewer subjective judgements and is able to be used effectively in performance measurement by constructing passive style based benchmarks in order to assess fund risk exposure and relative return performance.

However, there are certain drawbacks to the returns based approach to style analysis. Swinkels and Van Der Sluis (2006) indicate that a major drawback of the approach is the assumption that manager styles remain constant over the investment period analysed. They indicate that the use of rolling regressions is found to alleviate this problem, by using a 'window period' one is able to account for changing manager style over time. However, this approach creates the problem of requiring a subjective judgement as to an appropriate window size. The authors indicate a range of between twenty four and sixty months is commonly used, however it should be noted that the results of the analysis may vary when applying differing window periods.

Work by Corielli and Meucci (2004) has found several areas of concern regarding the successful implementation of the returns based technique. Firstly, the authors identify a central assumption implicit in all style analysis, simply the need to characterise the strategy of the active manager in terms of a set of observable variables orthogonal to it. Buetow, Johnson and Runkle (2000) suggest that the results of return based style analyses are inconsistent not due to flaws in the applied methodologies, but simply because of the lack of widely accepted definitions of certain styles. Hence the use of passive style indices to characterise the style of an active manager will yield unreliable results as the manager's definition of a certain style may be different to the definition used in building passive style indices. The authors doubt whether any such definition would exist in future, and so any style based inference using passive style based variables should be done so with caution. It is acknowledged that the definition of style may vary across managers, however in a constrained investment universe such as that of the Johannesburg Securities Exchange, this may be less of a problem. Furthermore, the style indices used in the current study are tradable and have an observable return series and so allow a prospective investor to examine the risk and return trade-off of active versus passive investment.

Further to this Corielli and Meucci (2004) investigate the approach of Sharpe (1988, 1992). They indicate the implemented quadratic programming approach with a rolling window assumes that the strategy of the active manager is either market neutral or in effect passive i.e. totally absent. In the case of the current study, a sample of long only equity funds and unit trusts is analysed, hence such assumptions are in fact acceptable.

Thirdly, as indicated by Sharpe (1988, 1992) and Labosco and diBartolomeo (1997) the chosen indices used in the implementation of the returns based style analysis need to be "exclusive". The authors indicate that the regressors can be collinear, although this may limit the precision of the constrained estimates. Refer to section 4 of the current study where the correlation amongst

the chosen style indices is presented. The results indicate that where sources of common variation are removed from both chosen style indices, the active returns on these indices relative to a market index show little correlation.

The work of the aforementioned authors indicates that the results of returns based style analysis should be interpreted with caution. Buetow, Johnson and Runkle (2000) infer that returns based style analysis is most effective when the investment philosophy of the portfolio manager is well understood and there are a set of asset classes that properly capture this philosophy. Where an investment philosophy is unclear, the results of a returns based analysis may be very dynamic and contain little analytical value. Where investment philosophies are in fact well understood the use of passive style indices to create custom portfolio specific benchmarks assist in more effective performance measurement and improved manager selection.

### **2.2.3 COMPARISON OF RETURNS BASED AND PORTFOLIO BASED STYLE ANALYSIS**

The central question posited by de Rooy, Nijman & ter Horst (2004) and Rekenthaler, Gambera and Karlson (2006) in their recent studies were how well Returns versus Portfolio based style analysis describe the style traits of funds on a relative basis. Instead of focusing exclusively on the explanatory ability of one technique, the authors assess the comparative ability of both approaches to explain both current and future style.

de Rooy, Nijman & ter Horst (2004) examine eighteen U.S funds with a predominantly foreign equity focus and find that the estimated style exposures from the returns based methodology do indeed differ substantially from actual portfolio holdings. Therefore, Portfolio based style analysis is considered more effective at predicting future portfolio holdings than its returns based counterpart. However, the authors indicate that should the aim be to predict future fund returns, factor exposures seem to be more relevant than actual portfolio holdings hence return based style analysis being more appropriate than holdings based style analysis. These results conflict with those of Chan, Chen, and Lakonishok (1999), however given the smaller size and nature of the sample may not be wholly indicative of U.S funds in general.

Rekenthaler, Gambera and Karlson (2006) analyse a sample of 287 funds selected from Morningstar's database of diversified U.S. equity funds for which there are annual portfolios for a December 31 date from 1997 through 2002, and complete monthly performance data since January 1995. The style indices used were comparable to those applied by de Rooy, Nijman & ter Horst (2004) in their study and sourced from Russell and Morgan Stanley Capital International. As these indices are frequently used as benchmarks for mutual fund manager performance, the author cites these as being the most suitable for the study. Furthermore the authors indicate that, "the Russell indexes (unlike, for example the style indexes of Standard & Poor's), are comprehensive, thereby permitting a high hit rate for holdings within the individual mutual funds (that is, the percentage of securities found in both the fund and the index). In cases



where a stock crossed two style categories, its weighting was distributed according to a ratio assigned by Russell."

Following the portfolio based approach; the authors computed style portfolios for each fund by classifying each of the portfolio's holdings. Individual equity holdings were classified as belonging to a particular style with reference to Russell's criteria used in developing their style indices. Thereafter, a returns based analysis was executed using the same methodology as Sharpe (1988, 1992) applying a 36-month rolling window period.

The resultant style categorisations for the seven equity sub-asset classes and three fixed income sub asset classes showed significant differences over 1997-2002. To test the relative accuracy of the approaches, the degree of error with which the return based exposure was estimated is compared to the rate at which the quality of the portfolio based exposure degrades. More explicitly, the correlation and mean absolute deviations are calculated to compare the current portfolio based exposure with both current returns based exposure and the past portfolio based exposure.

The results of the comparison indicate that estimates generated by returns based style analysis are significantly less reliable than those of its portfolio based counterpart on a one year old portfolio. These findings disagree with the findings of de Roon, Nijman & ter Horst (2004). The authors indicate that returns based style analysis should not be disregarded based on their findings, but the results of the technique more closely interrogated and the context of its operation be well understood. In the context examined above, returns based exposures estimated for funds with significant Small and Mid-Cap holdings were found to be the most unreliable.

The comparative analysis provides mixed results regarding the supremacy of two of the most common style analysis techniques. Most importantly, where either approach is employed a good fundamental understanding of fund holdings and investment philosophy is required to provide meaningful inferences about style compliance. This study follows the work of Sharpe (1988, 1992) and performs a returns based style analysis, the special case of the generic form which imposes constraints on the beta coefficients of the chosen style factors.

## **2.3 MANAGEMENT STYLE CLASSIFICATION**

### **2.3.1 INTRODUCTION**

Institutional fund managers are continuously pitching to investment consultants and pension fund trustees requesting funding. The decision of whether to invest or not is becoming increasingly complicated with managers continually trying to develop new strategies and rework old ones in order to optimize return performance. Furthermore, the increase in the available

number of investable funds have further complicated the decision making process for investment consultants and trustees alike.

In order to better cater for the preferences of certain investors and allow for more focused, meaningful performance benchmarking, funds are often classified in accordance with their management style i.e. value, growth, core (style agnostic). However, it is often the case that funds classified as being of a certain style do not strictly adhere to the associated behaviour of the style classification into which they are categorized. Different management styles provide different return profiles. Where an investor invests in a fund based purely on its proposed style, and the fund deviates from this style, the consequences on both the magnitude and timing of performance can be significant. For many institutional investors such as pension and provident funds, such style misspecification can jeopardize the wealth of the fund's members should its assets not perform as expected.

This section reviews both developed and emerging market research that investigates instances of manager style misspecification. The majority of the prior research analyses unit trust and mutual fund return data. Studies reviewed develop a range of approaches that aim to better classify funds based on either returns-based or portfolio based style analyses. Literature is presented in chronological order with emphasis placed on that research most relevant to the current study.

### **2.3.2 DEVELOPED MARKET RESEARCH**

In early seminal work Sharpe (1988, 1992) asserts that the asset allocation decision is the central choice that determines the variability in the return of any investor's portfolio. In order to test this hypothesis the author develops a specific asset class factor model with which to perform a returns-based style analysis.

The factors employed in the development of the model represent a collection of widely accepted, defined asset classes – twelve in total. In defining an asset class, the author indicates that for it to be identifiable it should be (1) mutually exclusive, (2) exhaustive and (3) have returns that “differ” i.e. exhibit low correlation with other asset classes. Examples of these sufficient asset classes included Bills, Government Bonds, Large-Capitalization Value Stocks, Large-Capitalization Growth Stocks, Medium-Capitalization Stocks and Small-Capitalization Stocks. The aforementioned Value, Growth and Size classifications are as defined in the institutional universe of US equities.

The defined asset classes are used to perform a returns-based style analysis for each of a total of 395 US funds analysed from January 1985 through December 1989. In determining each fund's exposure to the various asset classes, a multiple regression analysis is performed using the historic returns on the candidate fund and those of the defined asset classes. Three regression-based analyses are performed by the author.

The first, an 'Unconstrained Regression', allows the regression coefficients of each of the included assets classes to vary in an uncontrolled manner. This type of regression presents a problem when describing the style of a fund that cannot go short when any of the resultant regression coefficients turn out negative.

In order to control for imperfections in managers' investment processes, a 'Constrained Regression' was performed which requires the factor coefficients to sum to one hundred percent. The inconsistency between the resultant coefficients and the fund's investment policy remains.

Finally, a 'Quadratic Programming' approach is followed whereby each factor's coefficient is required to sum to one hundred percent. The aim of this additional constraint is to minimize the variation in the returns of the fund being analysed attributable to non-asset class related factors. More specifically, asset class factor models should be constructed to minimize tracking error. Sharpe (1988, 1992) indicates that such an approach allowed for the meaningful classification of manager return performance based on asset class exposure.

A factor model developed in such a manner allows for the measurement of any manager's exposures to variations in the returns of major asset classes. A key assumption of the constructed asset class factor model is that the non-factor return of the candidate portfolio be uncorrelated, and that factors/asset classes identified be the only source of correlation amongst portfolio returns.

The results of the analysis indicate that most fund manager products advertised are closely aligned with their advertised styles. However, manager styles are seldom found to be 'pure', i.e. prescribing only to the style advertised. Examples of blended styles include Growth Equity Fund managers having significant exposure to bills and value stocks. In addition 'Small Stock Fund' managers were found to have a greater preference for small-growth companies rather than small-value companies.

In later work diBartolomeo and Witkowski (1997) carry out a similar returns-based style analysis on a sample of 748 US mutual funds in order determine the prevalence of style misspecification amongst managers. Funds included in the sample were required to have at least 60 months of complete return data with no missing values and were classified into the following categories; (1) aggressive Growth, (2) Growth, (3) Growth-income, (4) income, (5) international and (6) small capitalization. Survivorship bias was cited by the authors as being a concern; however reviewed literature provided inconclusive evidence as to its potential impact on results. No adjustment or correction was implemented to control for this aggravating factor.

Once again a returns-based approach to style classification is preferred to the characteristics based approach due to the potential difficulties in sourcing the required fundamental data in order to properly categorize specific styles. The analysis was performed using the gradient method quadratic programming algorithm of the sort described in Sharpe (1988, 1992).

Indices representing each of the aforementioned style classifications were constructed from the returns of all funds in each respective category. A minimum variance portfolio was then constructed from the 6 indices. Thereafter, each individual fund's performance was mimicked through the linear combination of the built style indices. Therefore, where a fund is considered as being 'Growth' orientated, but the majority of the return series is described by an index other than 'Growth', it may be considered misclassified. To avoid this problem of misclassified funds being included in the incorrect index, indices were re-calculated after each classification.

An additional univariate regression analysis was performed whereby each fund's return series is regressed against each of the style indices as a cross-check on style classification.

The results of the analysis indicate that of the 748 funds analysed, approximately 298 or 40 percent were misclassified. The authors indicated that as a result of their reclassification, the aggressive Growth category grew the most with 46 small cap funds and 38 Growth funds return behaviour being more similar to aggressive Growth funds, in line with Sharpe (1988, 1992) who found a similar Small Cap-Growth style bias. Although the study indicated that an investor would improve his/her accumulated wealth over the bullish sample period, they would do so by taking on additional levels of risk which could severely impact performance should the sample period included a more bearish component.

In light of this widespread misclassification, Brown and Goetzmann (1997) analysed fund return data from 1976 to 1994 and proposed a new empirical approach in the determination of manager 'style'. The approach aims to assist in explaining the differences in future return patterns of different managers. Furthermore, as management styles are often used for the purposes of performance evaluation and manager compensation, the need for empirically determined, consistent manager style classifications free from moral hazard are essential from the investor's perspective.

A 'style classification' algorithm is constructed that groups funds based on the cross-sectional variation of past returns in conjunction with the response to exogenously specified and endogenously determined stochastic variables. The results of the model validate the use of conventional categories such as Equity Income, Growth and Income and Growth. However, the research indicates that more than half of the identified 'Growth' funds are misclassified. There is evidence of 'Value' vs. 'Glamour' managers instead of the previous small cap classification. In addition, evidence of dynamic strategies instead of fixed portfolio weights is discovered. These findings concur with Sharpe (1988, 1992) who found very few 'pure' style managers.

Interestingly, Brown and Goetzman (1997) found evidence to suggest that US mutual fund managers intentionally misclassify their funds in order to improve their ex-post performance figures and so beat investors' expectations.

Mayes, Jay and Thurston (2000) investigate similar propositions, being whether established fund categories are assigned with consistency given the nature of fund return patterns or style and

whether or not such returns based style analysis can assist investors in selecting and retaining their desired risk levels.

The study examines a sample of 414 US mutual funds sourced from Lipper Analytical Services Incorporated using a similar quadratic programming approach as presented in Sharpe (1988, 1992) to classify funds and thereafter a discriminant based analysis to assess the consistency of the returns based style analysis technique. Monthly returns on both the aforementioned funds and indices were used over the period July 1991 to June 1996 incorporating ten 'style' indices consisting of Value and Growth indices sourced from the likes of Russell and MSCI. The authors note that as funds were classified using prospectus language and a subjective means, they acknowledged that certain funds could have been misclassified due to analyst error.

The results of the study indicate that returns based style analysis correctly predicts the style exposure of a statistically significant portion of the funds analysed and recommend it is used as a method to verify more traditional techniques. However, a portion of the funds in sample remain misclassified which the authors conclude are due to the following (1) the original mislabelling of the fund, (2) investment drift after classification and/or (3) an inefficient model specification. Rekenhaller, Gambera and Karlson (2006) question these results and indicate that the findings are, "...not too practical, because of a correlation of 15% results are statistically significant in their sample, but implies an unacceptably high error rate on a practical level." Also, they use traditional fund objectives, a method partly relying on a fund's stated investment practice rather than on existing behavior or portfolios."

The implications of such widespread style misclassification are considerable for the potential investor when considered in light of work by Davis (2001).

Davis (2001) studied the relationship between mutual fund performance and manager style in order to assess (1) whether any investment style is able to generate abnormal returns on average and (2) whether funds grouped by investment style exhibit any form of performance persistence.

Mutual fund return data were sourced from the CRSP database which is free of survivorship bias. Only funds classified as Growth, Growth and Income, Maximum Capital Gains, Small-Cap Growth and Aggressive Growth were included in the sample along with those funds that were invested primarily in equity. The selected sample comprised 4,686 funds over the thirty six year period spanning 1962 to 1998.

The Fama and French three factor model was applied to raw return data to determine each fund's investment style. Portfolios based on style were then formed and rebalanced on an annual basis over the sample period with performance assessed using a three factor model that incorporated factors for size and Value versus Growth.

The results of the analysis indicate that no investment style managed to earn abnormal returns over the studied sample period. Some evidence of short term performance persistence amongst

Growth funds was identified; however this was not sustained beyond one year. In addition, the study found that managers with some Value emphasis significantly underperformed over the sample period. The results of the study suggest that the purported style classification of managers should be carefully monitored. Furthermore, the selection of mutual fund managers should be done so carefully by investors, with poor decision making resulting in a material impact on realised return performance.

Swinkels & Van Der Sluis (2006) agree that, "...Return-based style analysis is a useful, generic, and quickly applicable tool for investors to get a first impression about the investment philosophy of a mutual fund." However, as there is evidence to suggest that manager style is dynamic and varies over time; the authors propose an alternative approach to the selection of a subjective rolling window period in the quadratic programming technique applied by Sharpe (1988, 1992).

The Kalman filter approach is introduced as an alternative to explicitly model the time variation of exposures for return-based style analysis per mutual fund. The advantages of this approach over the conventional rolling window technique include (1) the entire sample period being used to estimate manager style at any point in time, and (2) having the resultant style estimates change smoothly over time, reducing the influence of spurious correlation between style indices and mutual fund returns in small samples.

The proposed statistical model is applied firstly to a regional sample of twelve U.S. mutual funds and thereafter to a sample of asset allocators, approximately 87 funds. Despite evidence of improved return predictability and style classification, the authors acknowledge that the realised improvements are modest and should be viewed as refinement to current practices and by no means replace existing style analysis techniques.

### **2.3.3 EMERGING MARKET RESEARCH**

Robertson, Firer and Bradfield (2000) investigate the prevalence of style misspecification of a sample of 51 South African unit trusts over the 48 months from January 1995 to December 1998. The research was spurred on by the significant evidence of US mutual fund misclassification, as documented by Kim, Shukla and Tomas (1995) and diBartolomeo and Witowski (1997).

The work of Robertson et al as in developed market literature identifies two chief approaches for fund style classification, specifically (1) composition-based and (2) returns-based style analyses. The composition-based approach analyses portfolios from an individual asset perspective, specifically how a manager combines individual securities in a portfolio. The returns-based approach looks for statistical relationships between the returns of the invested portfolio. The time consuming nature of the composition based approach coupled with data constraints often hamper the effectiveness of the approach.

A returns-based analysis performed followed the quadratic programming approach as in diBartolomeo and Witowski (1997) first described in Sharpe (1988, 1992). The results indicated that 9 of the 51 unit trust fund analysed were misclassified, with their return patterns indicating they belonged to a style category other than their own. Furthermore, all the misclassified funds were general equity funds representing 38% of the general equity funds in sample. Once reclassified, the average monthly return of all the fund categories increased, whilst the mean-squared error of the residual fund returns decreased considerably as in diBartolomeo and Witowski (1997).

The results indicate as in Sharpe (1988, 1992), Christopherson (1995) and Barneby, Good and Hermansen (1986) that comprehensive style based analysis may allow for improved performance measurement, risk control and benchmark selection.

In later work by Karacabey and Gökgöz (2006), the style compliance of a sample of eleven actively management Turkish individual retirement funds are examined. As the Turkish pension industry was then in its infancy, only a short time period since its inception in November 2003 to March 2006 is examined.

The study closely follows the approach of Sharpe (1988, 1992) in assessing the asset exposures of each of the funds. The factors selected for the analysis included the returns on the ISE-Financials index, ISE-Real Estate index, ISE-Industrials index, ISE-Service index, returns on cash in US dollars and the returns on the Government Internal Loan Performance index (essentially the risk free rate of return).

The results of the analysis indicate that Turkish retirement funds tend to invest predominantly in risk free assets. Most promisingly, the results indicate that over the past twenty months with the performance of the local economy, so managers and their funds have shifted their asset allocation to more risky assets. The monitoring of the asset class exposure for such influential industry participants allow for the identification as to what extent the retirement fund industry is supporting the domestic investment industry.

Clay Singleton, Fowler and Grieves (2007) assesses the asset exposure of a sample of ninety nine actively managed equity focused unit trusts in New Zealand over the period January 1999 to July 2006. The authors follow the approach presented in Sharpe (1988, 1992) and perform a returns based style analysis on monthly unit trust return data using a range of asset class benchmark indices sourced from Morgan Stanley Capital International. A characteristics based approach could not be followed as unit trusts in New Zealand are not required to disclose their portfolio holdings. The results of the analysis indicate that the equity focused unit trusts in New Zealand see their return behaviour more closely resemble that of fixed income, and are significantly different to equity returns. Further to this, the authors investigate the contribution of the active equity focused unit trust managers over and above passive benchmarks with similar asset class exposure. They find that investors would be better off purchasing passive

alternatives, as the contribution to returns made by active managers is found to be negligible once fees and transaction costs are deducted. The results of this study disagree with those of Gronewoller, McLeod, and Rose (2001) who find that sample of nineteen retail unit trusts in New Zealand are predominantly invested in large capitalisation equity stocks on the local bourse. Clay Singleton, Fowler and Grieves (2007) suggest that the small sample size of nineteen stocks with three years of monthly observations relative to many (nine) benchmark indices make these results questionable.

Such analysis agrees with other developed and emerging market research in recommending returns based style analysis as a quick, easy to use tool to test manager asset exposure for compliance and compare realised active performance with that of an alternative passive portfolio.

## **2.4 PERFORMANCE MEASUREMENT**

### **2.4.1 INTRODUCTION**

As the landscape of institutional investment vehicles continues to develop in the South African context, with such development comes the growing need for well-defined reference points or performance benchmarks with which to assess the performance of any given asset manager. A proper assessment of the ability of managers to time the market and/or exhibit superior individual stock selection ability is essential in order to maximize the returns to investors.

In the study by Akinjolare and Smit (2003), standard measures of return performance most often employ historical average returns as a means of estimating future returns and therefore are considered inadequate indicators of return where risks and risk premiums vary over time. The authors state that the common variation in such risks and risk premia may be confused with average return performance.

Akinjolare and Smit (2003) assess the inclusion of various market factors such as dividend yield and term structure when benchmarking South African unit trust return performance. Strong evidence is found to support the idea that funds' market risk exposure varies in response to changing market conditions i.e. managers respond to public information and adjust their risk profiles in an effort to time the market and so capture return performance.

Studies such as the above indicate that the accurate benchmarking of manager performance is a complex process. This section aims to suggest alternative means of performance benchmarking that better quantify the opportunity cost of selecting any one manager.

### **2.4.2 ALTERNATIVE BENCHMARKS**

Sharpe (1988, 1992) extends his previously mentioned returns-based style analysis to establish a more accurate means of manager performance measurement. The constructed style based factor



model allows for the determination of a passive style based benchmark with which to assess active managers who promise returns from both their chosen style and their unique stock selection. Therefore, the approach adopted to assess manager performance is simply the difference between any active fund's return and that of a 'passive mix with the same style'.

To implement such an analysis, sixty months of historic returns data is typically used to determine the manager's style in the current month. The process is rolled forward on a monthly basis so that the manager's style is always determined prior to the current month. The difference between the manager's return and the returns of the calculated style based benchmark represents the manager's selection return for the current month.

The analysis, when applied to a select few US mutual funds, provided mixed results with certain managers underperforming their style benchmarks i.e. indicating a negative selection return and otherd outperforming their style benchmarks.. In an attempt to further supplement the style based performance assessment, additional market based indices were added – in this case the S&P 500 index. As a result, certain managers are found to have significantly underperformed both their style and market benchmarks, attributable mainly to poor stock selection. Other managers however, showed marginal outperformance of the S&P 500 but considerable outperformance of their style based benchmarks indicating superior stock selection ability within their asset class/style category.

To provide some indication as to the prevalence of manager stock selection ability and the resultant over/under performance, a style analysis was performed on a sample of 636 stock, bond and balanced funds. The resultant average monthly tracking error was approximately -7.4 basis points, providing evidence that the average mutual fund cannot 'beat the market' before costs.

The results of Sharpe (1988, 1992), etc provides the means for an investor to properly understand a manager's chosen style and ability to outperform passive benchmarks due to superior stock selection ability. The style based benchmarks constructed allow an investor to place managers in style buckets and properly assess their performance relative to their peers. The results of such analysis provide the means to more accurately benchmark managers and so improve an investor's ability to select and rebalance their portfolios.

In a study by Daniel, Grinblatt, Titman and Wermers (1997) the authors examine the stock selection ability of US mutual fund managers through the construction of benchmarks based on the characteristics of stocks held by the portfolios being evaluated. It is asserted, as in Grinblatt and Titman (1989a, 1993), that a closer study of any portfolio's constituents will allow an analyst to better understand a manager's style, and in so doing construct a more appropriate benchmark with which to assess relative performance.

In constructing these characteristic based benchmarks, the authors analyze the quarterly holdings of a sample of approximately 2500 mutual funds over the period 1975 to 1994. The

styles of each fund's portfolio was determined with reference to the following firm-specific characteristics (1) Market Capitalization, (2) Book to Market Value and (3) Momentum. As an example, aggressive Growth funds were classified as picking smaller stocks with lower book to market ratios that exhibit higher momentum. Once the funds had been classified into their respective styles, specific style benchmarks were constructed for performance assessment by collecting stocks that exhibit similar firm-specific information.

Three primary characteristic based measures were computed to assess fund performance. Firstly, the Characteristic Sensitivity or ("CS") measure constructed a return based benchmark for a fund each quarter based on the market capitalization, book-to-market ratio and momentum exhibited by the fund. Where a manager has a CS measure in 0, this indicates the manager has no stock selection ability and his/her fund's performance can in fact be replicated by a passive portfolio constructed to match the level of the aforementioned characteristics. Second, the Characteristic Timing or ("CT") measure assesses the ability of a manager to time the market and move between different styles. Lastly, the Average Style or ("AS") measure aims to assess the fund's performance attributable to holding stocks with defined characteristics.

The results of applying the above characteristic based benchmarks agree with the results of Sharpe (1988,1992) indicating that certain fund managers do in fact have the ability to provide abnormal returns that cannot easily be replicated by passive investment strategies or similar rules based approaches. More specifically, aggressive Growth funds are found to exhibit some stock selection ability, whilst none are found to have characteristic timing ability. However, the level of active manager outperformance is found to be fairly marginal (under 100 basis points), which is approximately in line with management fees charged by active managers. Such an analysis justifies the need for more precise benchmarking to ensure top quartile manager selection.

Scher and Muller (2005) investigated the prevalence of style based investing in South Africa and whether in fact such a technique had any impact on the persistence of performance of South African unit trust returns across 106 funds (2002). Their approach sought to establish whether or not South African managers were able to outperform a passive style benchmark on a risk-adjusted basis.

Notably, as the JSE contained no adequate style indices at the time of the study, the authors constructed benchmark style indices from the Mutooni (2001) database which contained JSE listed industrial shares ranked on the basis of market capitalization and the P/B ratio. The current study courtesy of A-DEX applies fully investable style indices in a returns-based style analysis as performed in Sharpe (1988, 1992). The constructed indices include the most liquid listed shares on the Johannesburg Securities Exchange. Refer to Section 5 of this paper for more detail on the applied indices.

The authors follow the work Sharpe (1988, 1992) in classifying the style of the respective managers according to a multifactor regression model. The style factors of Growth, Value, small cap and large cap were selected, with the most statistically significant coefficients identifying each manager's respective style bias and allowing for the classification of all funds into defined style portfolios.

The results of the study indicate that South African unit trust funds were unable to outperform the market when adjusted for exposure to the market, size and Value factors. Most notably, small cap and Value funds exhibited the most statistically significant negative performance persistence over the analysed sample period.

#### **2.4.3 PERSISTENCE IN PERFORMANCE**

Further studies performed on similar samples of unit trust data demonstrate the difference in results when alternative methods of risk adjustment are employed when assessing fund performance. Earlier work by Meyer (1998) examined the persistence in performance of SA Unit Trust managers over a ten year period ending June 1995. The sample analysed contained only 13 funds at inception and by June 1995 comprised a total of 84 funds, with 33 funds being in existence over a five year period. The author identified three issues to be considered in the performance assessment of unit trust managers from a review of developed market studies namely; (1) Impact/elimination of survivorship bias, (2) Appropriate method for risk-adjustment and (3) Choice of time period and its associated impact on results.

In addressing these issues, the author indicated that survivorship bias had no material impact on the current study as very few unit trusts had closed down in SA over the sample period. For risk-adjustment purposes the JSE All Share index is selected and several different time intervals are specified to determine the impact of time period selection.

Unlike the multifactor asset factor models used in Sharpe (1988, 1992), diBartolomeo and Witowski (1997) and Robertson, Firer and Bradfield (2000); the Jensen (1968) performance measure approach was adopted. Unit trusts were classified as either 'winners' or 'losers' with winners defined as those where performance was superior to the median performance of all funds in the sample. The results of the study are somewhat consistent with Page and Oldfield (1997) and several developed market studies, indicating little evidence of statistically significant persistent performance being identified in SA.

In later work Von Wielligh and vd M. Smit (2000) investigate the prevalence of persistent performance of General Equity Unit Trusts and All Unit trusts that traded in SA over the twenty year period ended December 1997. A total of four data samples were used with the number of constituent funds ranging from 10 to 42 over the different periods. The authors concur with Page (1993) in stating that the conclusions reached in prior studies are very much model and benchmark dependent.

The approach of Von Wielligh and vd M. Smit differs from earlier work by Meyer (1997), Page and Oldfield (1997) in that an APT framework as in Sharpe (1988,1992) is applied in assessing unit trust performance instead of the conventional CAPM model. This approach is supported by the work of Van Rensburg and Slaney (1997) and Van Rensburg (1998) in which a two factor APT model was developed that provided significantly greater explanatory power of the cross sectional return variation of listed JSE shares relative to a single factor CAPM model that selected the JSE All Share Index as a market proxy.

The three models of performance measurement applied in Von Wielligh and vd M. Smit (2000) included the CAPM, a two factor APT model as developed in Van Rensburg and Slaney (1997), and a three factor APT model developed with suggestion from Van Rensburg.

Funds were grouped into three equally weighted portfolios based on the current year's excess return performance in assessing performance over three, five and ten year periods. The results of the analysis provide clear evidence of persistent unit trust performance in SA. When considering only General Equity Unit Trusts, there is evidence of both short and long term performance persistence with the worst performers remaining the worst and the average and top performers converging over the sample period.

In a later study, Firer (2001) revisited the issue of performance persistence amongst general equity and fixed income unit trusts over a ten year period ending December 1999. The study included 43 general equity and 35 fixed income unit trusts for which different holding periods (3 months, 6 months, 1 year and 2 years) were assessed.

In order to assess persistence in performance, a different approach was favoured whereby winner-loser chi-squared contingency tables were developed as in Kahn and Rudd (1995) where unit trust returns were ranked and assigned to quartiles in line with specified formation and holding periods. Performance was then investigated by determining whether or not unit trusts repeated their performance in terms of quartile rank over the holding period.

The results of the analysis are in line with Von Wielligh and vd M. Smit (2000) indicating wide scale persistence in performance across a range of formation and holding periods, both short and long term for general equity unit trust funds. The strongest persistence was found when using a half year formation period and a quarter holding period. Fixed income unit trust performance persistence was found to be less statistically significant and more evident over the long term.

The authors indicate that results differ significantly from previous SA studies such as Gilbertson and Vermaak (1982) and Meyer (1998) due to the larger dataset analysed coupled with differing testing methodologies employed for the testing of persistence and risk adjustment.

#### 2.4.4 CONCLUSION

The results of both developed and emerging market studies indicate the prevalence of significant style misspecification across both mutual and unit trust funds. The return based analyses using the asset factor models developed in Sharpe (1988, 1992) indicated that such misspecification once corrected for can have a significant impact on fund returns as in diBartolomeo and Witowski (1997). Furthermore, the consequences for an investor selecting an inappropriate style during any given market cycle can be significant, with certain styles prone to periods of relative underperformance as referred to in Davis (2001). In addition, Brown and Goetzman (1997) indicate that fund managers intentionally misclassify their funds in order to improve their ex-post performance figures and so beat investors' expectations. Whether such misspecification is intentional or not, the fact remains that it has global presence. Such evidence serves to reinforce the need for detailed diligence procedures on the part of the investor when selecting among managers across a range of purported styles.

It should be noted however, that the application of returns based style analysis should be done so with caution where the investment philosophies of the funds being analysed are not completely understood. Work by Swinkels & Van Der Sluis (2006), Corielli and Meucci (2004) and Buetow, Johnson and Runkle (2000) and several other developed and emerging market authors indicate that any misunderstanding of a fund's investment style, inconsistency in the definition of a certain style or excessive correlation amongst applied passive style indices used to test style compliance may result in inferences about fund style of little accuracy and analytical value.

The work of Sharpe (1988, 1992) and Buetow, Johnson and Runkle (2000) amongst other developed market research reviewed indicated that in order to select adequate benchmarks, investors need to better understand manager asset class or style exposures. As managers prescribe to different styles and are classified accordingly, so custom benchmarks should be constructed in order to better assess specific manager performance. The extension of the returns-based analysis in Sharpe (1988,1992) to create passive style based benchmarks, together with the characteristics based performance tools developed by Daniel et al (1997), are evidence that when properly assessed the prevalence of manager out/under performance is more easily detectable.

## **3 DATA**

### **3.1 INTRODUCTION**

This chapter presents the dataset used as the basis for the current study. The data used comprise index returns for constructed style indices and manager return data for a sample of South African institutional funds. These datasets are used in conjunction in a cross sectional setting later in Section 9 of this study. They are presented separately in this section in order to improve the understanding of the sample selected.

### **3.2 DATA**

#### **3.2.1 STYLE INDICES**

Scher and Muller (2005) constructed benchmark style indices from the Mutooni (2001) database which contained JSE listed industrial shares ranked on the basis of market capitalization and the P/B ratio.

This study uses style indices constructed by A-DEX Asset Management. Both indices used in the current study are publically traded. The returns of both the VALUE 60 and MOMENTUM 60 indices are fully observable permitting the replication of the forthcoming analysis and are available on the A-DEX website (<http://www.a-dex.com>). The creators believe that these indices are a marked improvement over those used in previous studies as they are both investable and cover a broader spectrum of the market, including the top sixty shares by market capitalization on the JSE. The methodology employed in the construction of these style indices is confidential and is proprietary information belonging to A-DEX. In order to gain a better understanding as to how these indices differ from those applied previously in the South African context, refer to the description below from co-creator Roland Rousseau who describes the construction of the unique MOMENTUM 60 and VALUE 60 indices at a high level:

“The A-DEX SA Value Index applies a pre-defined, systematic, rules-based strategy to weight stocks depending on their degree of cheapness using traditional value criteria. We use criteria like price relative to headline earnings, dividend yield, sales etc to construct an index with approximately 30 constituents that are chosen out of the largest and most liquid 60 stocks on the JSE based on market capitalization. The indices are rebalanced monthly. Our index therefore systematically captures in a much cheaper manner the returns typically generated by active managers that rely on value investing. Because our indices rely on price-relative valuation they are not to be confused with ‘price-indifferent’ or ‘fundamental indexation’ strategies. By considering price in its construction we believe it more accurately captures the Value style of investing.

The A-DEX SA Momentum Index applies a pre-defined, systematic, rules-based strategy to weight stocks to best capture the Momentum effect in share prices. Momentum is an internationally recognized driver of active portfolio returns in excess of the overall market returns. We construct an index with approximately 30 constituents that are chosen out of the largest and most liquid 60 stocks on the JSE based on market capitalization. The indices are rebalanced monthly. Our index therefore systematically captures in a much cheaper manner the returns typically generated by active managers that are exposed to momentum effects. Independent research, as well as our own, clearly demonstrates that Momentum effects do exist in the SA market and can be exploited with rules-based index strategies.”<sup>3</sup>

The remaining indices reviewed are the Short Term Fixed Interest Composite Index, (“Stefi”) and the Shareholder Weighted Index Total Return Index, (“SWIX”). The Stefi Composite Index presents the return profile earned by investors investing in cash and related money market securities. The performance of this money market instrument is included as a simple point of reference for equity market returns, and purely for illustrative purposes in the current study. The SWIX Total Return Index is shareholder weighted and represents an overall market proxy, presenting the return profile earned from a general market exposure.

Furthermore, Scher and Muller (2005) included differential return style risk factors such as ‘Small minus Big’ and ‘High minus Low’ in order to ensure indices were uncorrelated with one another. However in doing so the resultant analysis allows for short positions to be taken, which may inadvertently reduce the relevance of the procedure for certain managers whose mandates don’t permit such trading techniques. The current study employs a quadratic programming algorithm approach (refer to Chapter 9), which addresses the restrictions managers are required to abide by in accordance with their respective mandates.

### **3.2.2 DESCRIPTIVE STATISTICS**

In order to gain an improved understanding of the sample data received, all relevant descriptive statistics were calculated for each constructed style index over the sample period and presented in Table 8.1 below.

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<sup>3</sup> Style index descriptions provided by Mr Roland Rosseau of A-DEX.

**TABLE 3.1 DESCRIPTIVE STATISTICS**

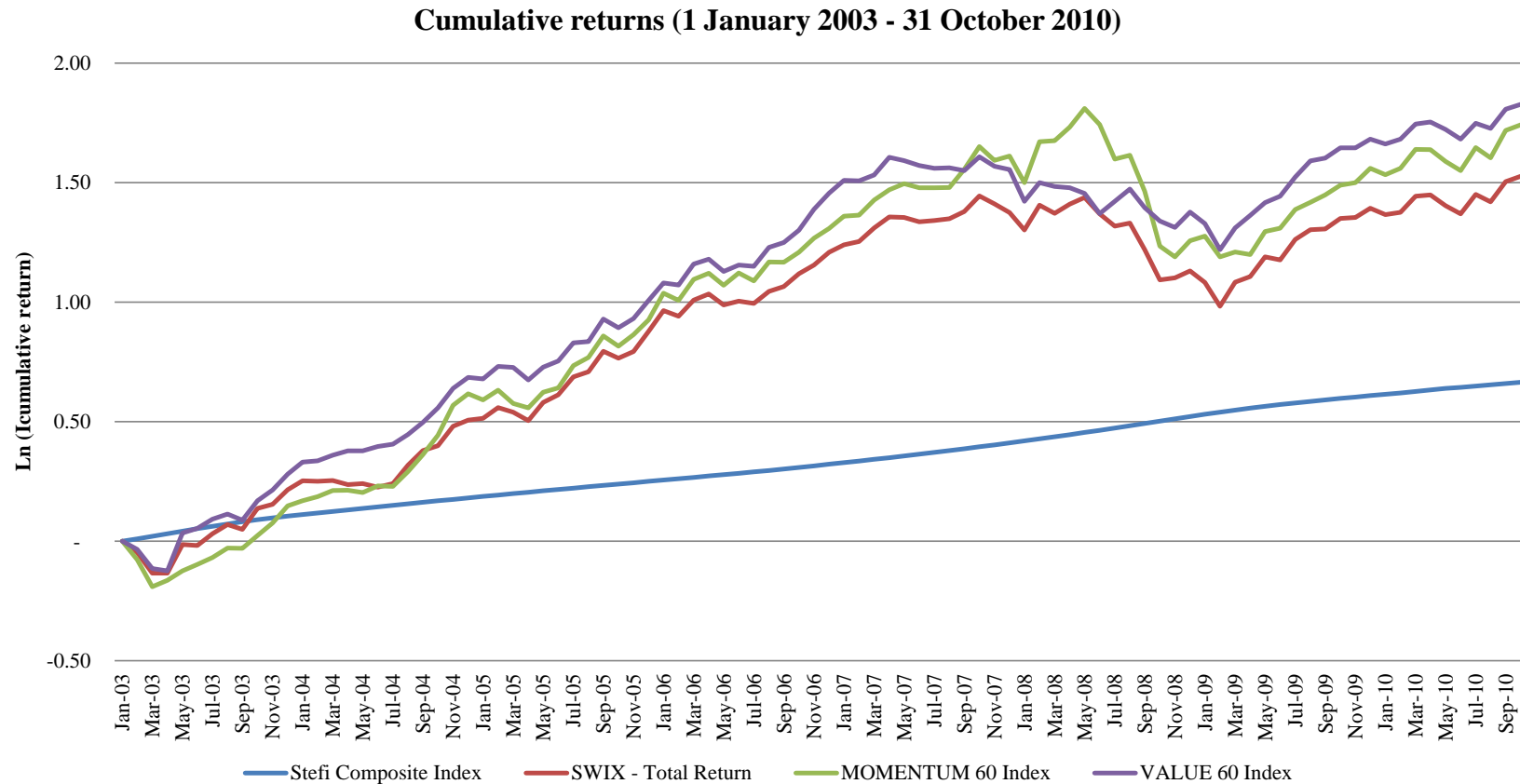
The table below presents all relevant descriptive statistics over the sample period per style index per month prior to any form of adjustment from January 2003 to October 2010. In addition the Jarque Bera test statistic is specified with the null hypothesis for this test being that the population follows a normal distribution. At the 5% significance level, where any index's test statistic is greater the chi-squared critical value, this would result in the null hypothesis being rejected and the sample being considered non-normal.

Style Indices	Mean	Median	Std dev	Kurtosis	Skewness	Min	Max	Count	Jarque Bera test statistic	Jarque Bera critical value
Stefi Composite Index	0.72%	0.66%	0.16%	-0.49	0.75	0.41%	1.13%	94	9.76	115.39
SWIX - Total Return	1.72%	1.93%	5.04%	-0.11	-0.26	-11.92%	12.72%	94	1.12	115.39
MOMENTUM 60 Index	2.04%	2.64%	6.27%	1.54	-0.70	-20.41%	18.72%	94	16.91	115.39
VALUE 60 Index	2.08%	2.11%	5.06%	0.33	-0.23	-12.38%	17.13%	94	1.25	115.39



**FIGURE 3.1 STYLE INDICES: CUMULATIVE RETURN PERFORMANCES**

The chart below presents the cumulative return performance of the constructed style indices over the sample period from January 2003 to October 2010.



**TABLE 3.2 CORRELATION MATRICES**

The table below presents a correlation matrix of the constructed style indices over the sample period from January 2003 to October 2010. Those cells highlighted in dark grey with white text indicate a strong correlation, whilst those highlighted in light grey with black text indicate a moderate correlation.

	<b>Stefi Composite Index</b>	<b>SWIX - Total Return</b>	<b>MOMENTUM 60 Index</b>	<b>VALUE 60 Index</b>
<b>Stefi Composite Index</b>	<b>1.00</b>			
<b>SWIX - Total Return</b>	-0.25	<b>1.00</b>		
<b>MOMENTUM 60 Index</b>	-0.29	0.87	<b>1.00</b>	
<b>VALUE 60 Index</b>	-0.20	0.88	0.74	<b>1.00</b>

The correlation between the VALUE 60 and MOMENTUM 60 index of 0.74 appears high, however includes a source of common variation. In order to better understand the relationship between the returns on these two indices, the returns on the SWIX – the source of common return variation is removed to derive the correlation of the active returns on these indices. A correlation matrix on these active returns is presented below.

	<b>Momentum 60 Index - SWIX</b>	<b>Value 60 Index - SWIX</b>
<b>Momentum 60 Index - SWIX</b>	<b>1</b>	
<b>Value 60 Index - SWIX</b>	-0.13*	<b>1</b>

\*The correlation of the active returns of the applied style indices suggests that their unsystematic return profiles are negatively correlated and quite different.

### 3.2.3 FUND RETURN DATA

All fund return data were sourced courtesy of the Manager Research division of RisCura Solutions (Pty) Ltd. The sample received contained return data from 60 funds covering a period from 31 January 1995 to 31 October 2010.

The sample of funds includes, amongst others, fund of funds and unit trust funds. Where a fund's structure is known to be significantly different to other funds in the sample, it is taken into account when interpreting the effective fund style mix and performance.

Of the 60 funds in the sample, 25 were classified as 'Value', 24 as 'Core' and the remaining 11 as 'Growth'. The Manager Research division of RisCura Solutions (Pty) Ltd provided the sample of manager return data classified based on a qualitative assessment as indicated below.

"The grouping is based on the evaluation of the investment process of the managers. Value managers are those whose primary concern is around the pricing of companies relative to the intrinsic value. Growth managers are more concerned with the ability of companies to grow earnings and earn return on capital above the cost of capital. There may well be overlap of these characteristics."<sup>4</sup> Refer to Appendix B to an extract from the RisCura Solutions Due Diligence Questionnaire which is used as a basis for manager style classification.

**TABLE 3.3 FUND NAMES**

The table below presents a list of the funds included in the current study.

Abax Equity	Coronation Aggressive Equity
ABSA Asset Management Core Equity	Coronation Core Equity
ABSA Asset Management Value	Coronation Houseview Equity
Advantage Focused Equity FOF	Element Equity
Advantage Moderate Equity FOF	Element Specialist Equity
Afena Capital Equity CAPI	Foord Specialist Domestic Equity
Afena Capital Equity SWIX	Huysamer Equity
Allan Gray Specialist Domestic Equity	Investec Contrarian Equity
Argon Domestic Value Equity	Investec Growth Equity
Aylett Equity Fund	Investec RI Equity fund
Cadiz Enhanced Index	Investec Value Equity
Cadiz Equity ALSI	Investment Solutions Pure Equity Local
Cadiz Equity SWIX	Kagiso Core Swix Fund
Cadiz Mastermind	Kagiso Equity Alpha Fund UT
Cannon All Equities SWIX	Kagiso Managed Equity Fund
Cannon ALSI Institutional Composite	Mergence Africa All Equity Fund (Swix)

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<sup>4</sup> Style classification method as defined by the Manager Research unit of RisCura Solutions (Pty) Ltd.

Mergence Africa SA Equity Fund (Capi)	Prudential Core Equity ALSI
Metropolitan Managed Equity Portfolio	Prudential Deep Value Equity
Oasis Specialist Domestic Equity	RE:CM Equity Composite
OMIGSA Core Equity CAPI Portfolio	RMBAM Equity 50% Resources
OMIGSA Core Equity Portfolio	RMBAM Equity Capped Index
OMIGSA Core Equity SWIX	RMBAM Equity Domestic Houseview
OMIGSA ELECTUS GARP Portfolio	SIM Unconstrained Equity
OMIGSA ELECTUS Multi-Cap Portfolio	STANLIB Core Equity
OMIGSA Investment Research Small Cap Growth	STANLIB Enhanced Index
OMIGSA Value Equity Investments Value Portfolio	STANLIB Financial & Industrial Fund
Orthogonal Equity	STANLIB Growth Equity
Orthogonal Equity	STANLIB Research
Prescient Equity Active Quant Fund	STANLIB Shariah Equity Fund
Prescient Equity Quant Fund	STANLIB Value

#### 3.2.4 DESCRIPTIVE STATISTICS

In order to gain an improved understanding of the sample data received, all relevant descriptive statistics were calculated for each manager over the sample period and presented in Table 8.3 below.

**TABLE 3.4 FUND DESCRIPTIVE STATISTICS**

The table below presents all relevant descriptive statistics over the sample period per fund prior to any form of adjustment. In addition the Jarque Bera test statistic is specified with the null hypothesis for this test being that the population follows a normal distribution. At the 5% significance level, where any fund's test statistic is greater the chi-squared critical value, this would result in the null hypothesis being rejected and the sample being considered non-normal.

<b>Fund</b>	<b>Mean*</b>	<b>Median</b>	<b>Std dev</b>	<b>Kurtosis</b>	<b>Skewness</b>	<b>Min</b>	<b>Max</b>	<b>Count**</b>	<b>Jarque Bera test statistic</b>	<b>Jarque Bera critical value</b>
Abax Equity	1.82%	2.44%	4.61%	0.91	-0.67	-13.72%	11.44%	73	8.00	91.67
ABSA Asset Management Core Equity	1.81%	1.93%	4.79%	0.27	-0.35	-12.65%	11.51%	102	2.40	124.34
ABSA Asset Management Value	2.26%	2.19%	4.07%	-0.33	0.06	-7.45%	12.22%	102	0.53	124.34
Advantage Focused Equity FOF	1.58%	1.81%	5.13%	3.05	-0.79	-24.99%	14.41%	186	91.63	216.65
Advantage Moderate Equity FOF	1.51%	1.77%	5.39%	2.46	-0.74	-24.99%	14.41%	186	63.67	216.65
Afena Capital Equity CAPI	0.89%	0.95%	5.28%	-0.22	-0.12	-11.44%	10.95%	46	0.21	60.48
Afena Capital Equity SWIX	1.14%	1.35%	5.12%	-0.26	-0.27	-11.28%	10.52%	50	0.73	65.17
Allan Gray Specialist Domestic Equity	1.96%	1.99%	5.04%	0.88	-0.08	-16.72%	18.39%	180	5.98	210.13
Argon Domestic Value Equity	1.55%	1.59%	4.87%	-0.09	-0.36	-10.50%	11.54%	67	1.50	84.82
Aylett Equity Fund	1.28%	1.77%	3.85%	-0.13	-0.60	-8.27%	7.98%	52	3.16	67.50
Cadiz Enhanced Index	1.42%	1.52%	5.86%	-0.09	-0.18	-14.86%	13.89%	130	0.78	155.40
Cadiz Equity ALSI	1.52%	1.58%	5.24%	-0.10	-0.17	-13.19%	12.77%	130	0.67	155.40
Cadiz Equity SWIX	1.69%	1.47%	5.07%	-0.06	-0.24	-12.00%	12.37%	98	0.96	119.87
Cadiz Mastermind	1.19%	1.37%	5.39%	0.35	-0.58	-14.52%	11.53%	57	3.47	73.31
Cannon All Equities SWIX	0.56%	1.09%	5.67%	-0.06	-0.33	-13.36%	11.75%	41	0.73	54.57
Cannon ALSI Institutional Composite	1.18%	1.73%	5.64%	0.68	-0.74	-15.89%	10.53%	50	5.56	65.17
Coronation Aggressive Equity	1.96%	2.29%	4.72%	-0.33	-0.31	-9.25%	10.57%	82	1.70	101.88
Coronation Core Equity	1.96%	2.26%	4.69%	-0.39	-0.25	-9.26%	10.81%	80	1.33	99.62
Coronation Houseview Equity	1.70%	2.30%	5.11%	-0.19	-0.39	-11.64%	11.96%	126	3.36	150.99
Element Equity	1.88%	1.44%	4.04%	-0.18	-0.09	-7.73%	11.24%	99	0.27	120.99

<b>Fund</b>	<b>Mean*</b>	<b>Median</b>	<b>Std dev</b>	<b>Kurtosis</b>	<b>Skewness</b>	<b>Min</b>	<b>Max</b>	<b>Count**</b>	<b>Jacque Bera test statistic</b>	<b>Jacque Bera critical value</b>
Element Specialist Equity	1.89%	1.65%	4.06%	-0.11	-0.18	-7.98%	10.83%	84	0.48	104.14
Foord Specialist Domestic Equity	1.72%	1.77%	5.03%	-0.36	-0.14	-9.81%	12.22%	129	1.16	154.30
Huysamer Equity	2.08%	1.85%	5.04%	-0.06	-0.08	-11.02%	14.97%	90	0.10	110.90
Investec Contrarian Equity	1.13%	1.00%	5.56%	0.79	-0.25	-14.34%	15.20%	45	1.64	59.30
Investec Growth Equity	1.25%	1.90%	5.72%	3.52	-0.94	-28.75%	13.96%	168	111.44	197.06
Investec RI Equity fund	1.37%	1.31%	5.36%	0.68	-0.42	-11.46%	13.16%	28	1.34	38.89
Investec Value Equity	1.91%	1.93%	5.70%	8.76	-1.62	-33.86%	14.34%	161	585.49	189.42
Investment Solutions Pure Equity Local	1.51%	1.72%	4.83%	-0.36	-0.30	-10.47%	11.87%	127	2.61	152.09
Kagiso Core Swix Fund	1.77%	2.29%	5.09%	-0.44	-0.26	-10.59%	11.33%	72	1.41	90.53
Kagiso Equity Alpha Fund UT	2.07%	2.26%	4.80%	-0.17	-0.29	-8.90%	11.92%	79	1.20	98.48
Kagiso Managed Equity Fund	1.30%	1.57%	5.15%	-0.38	-0.20	-9.52%	11.88%	50	0.63	65.17
Mergence Africa All Equity Fund (Swix)	0.35%	0.53%	5.92%	-0.61	0.10	-11.34%	11.26%	36	0.62	48.60
Mergence Africa SA Equity Fund (Capi)	0.86%	0.90%	5.78%	-0.51	-0.02	-10.96%	11.34%	44	0.49	58.12
Metropolitan Managed Equity Portfolio	1.30%	1.47%	5.90%	3.34	-0.91	-29.73%	14.93%	190	114.90	220.99
Oasis Specialist Domestic Equity	1.94%	2.03%	4.38%	-0.05	-0.23	-10.11%	12.77%	139	1.23	165.32
OMIGSA Core Equity CAPI Portfolio	1.86%	1.77%	5.00%	-0.16	-0.27	-11.28%	11.61%	88	1.19	108.65
OMIGSA Core Equity Portfolio	1.45%	1.34%	5.06%	-0.20	-0.21	-11.57%	11.88%	102	0.91	124.34
OMIGSA Core Equity SWIX	1.05%	0.87%	5.29%	-0.24	-0.20	-11.33%	11.01%	53	0.50	68.67
OMIGSA ELECTUS GARP Portfolio	1.82%	1.88%	5.02%	0.11	-0.45	-12.08%	11.83%	103	3.52	125.46
OMIGSA ELECTUS Multi-Cap Portfolio	1.22%	1.62%	5.56%	0.43	-0.44	-13.02%	14.18%	51	2.03	66.34
OMIGSA Investment Research Small Cap Growth	1.83%	2.97%	4.98%	0.30	-0.68	-13.65%	11.22%	107	8.57	129.92
OMIGSA Value Equity Investments Value Portfolio	1.59%	1.62%	5.18%	0.17	-0.30	-13.19%	12.31%	122	2.02	146.57
Orthogonal Equity Core	0.51%	0.71%	6.50%	-0.19	-0.42	-14.15%	11.01%	30	0.94	41.34
Orthogonal Equity Value	0.46%	0.56%	6.41%	-0.12	-0.39	-14.17%	11.05%	31	0.82	42.56
Prescient Equity Active Quant Fund	0.99%	1.44%	5.54%	-0.06	-0.34	-12.85%	11.68%	47	0.92	61.66

Fund	Mean*	Median	Std dev	Kurtosis	Skewness	Min	Max	Count**	Jacque Bera test statistic	Jacque Bera critical value
Prescient Equity Quant Fund	1.47%	1.39%	5.88%	-0.07	-0.24	-14.19%	14.37%	118	1.12	142.14
Prudential Core Equity ALSI	1.80%	1.66%	5.43%	-0.12	-0.07	-13.10%	15.94%	145	0.22	171.91
Prudential Deep Value Equity	1.95%	1.68%	5.23%	-0.14	0.07	-11.02%	15.77%	143	0.22	169.71
RE:CM Equity Composite	2.01%	2.10%	4.14%	0.83	-0.47	-11.52%	11.00%	87	5.66	107.52
RMBAM Equity 50% Resources	1.63%	1.89%	5.00%	-0.07	-0.36	-11.77%	12.18%	95	2.04	116.51
RMBAM Equity Capped Index	1.49%	1.31%	5.03%	-0.03	-0.27	-11.55%	11.09%	106	1.27	128.80
RMBAM Equity Domestic Houseview	1.78%	2.04%	4.63%	-0.09	-0.35	-10.27%	10.77%	84	1.79	104.14
SIM Unconstrained Equity	1.06%	1.11%	5.18%	-0.19	-0.39	-11.09%	9.75%	46	1.22	60.48
STANLIB Core Equity	1.52%	1.59%	5.35%	0.13	-0.27	-13.13%	14.64%	105	1.36	127.69
STANLIB Enhanced Index	1.51%	1.53%	5.34%	-0.23	-0.23	-13.07%	13.99%	117	1.33	141.03
STANLIB Financial & Industrial Fund	1.93%	2.30%	5.03%	0.67	-0.55	-13.63%	12.70%	82	5.73	101.88
STANLIB Growth Equity	1.67%	2.37%	5.46%	1.28	-0.77	-16.08%	13.92%	80	13.40	99.62
STANLIB Research	1.66%	2.09%	5.44%	-0.09	-0.30	-13.38%	14.35%	119	1.79	143.25
STANLIB Shariah Equity Fund	0.20%	0.53%	5.47%	2.76	-1.15	-18.76%	10.68%	40	21.52	53.38
STANLIB Value	1.84%	2.12%	4.59%	-0.07	-0.32	-9.92%	12.03%	121	2.11	145.46
<b>Average</b>	<b>1.49%</b>	<b>1.66%</b>	<b>5.16%</b>	<b>0.41</b>	<b>-0.37</b>	<b>-13.37%</b>	<b>12.40%</b>	<b>93.35</b>	<b>18.39</b>	<b>114.02</b>

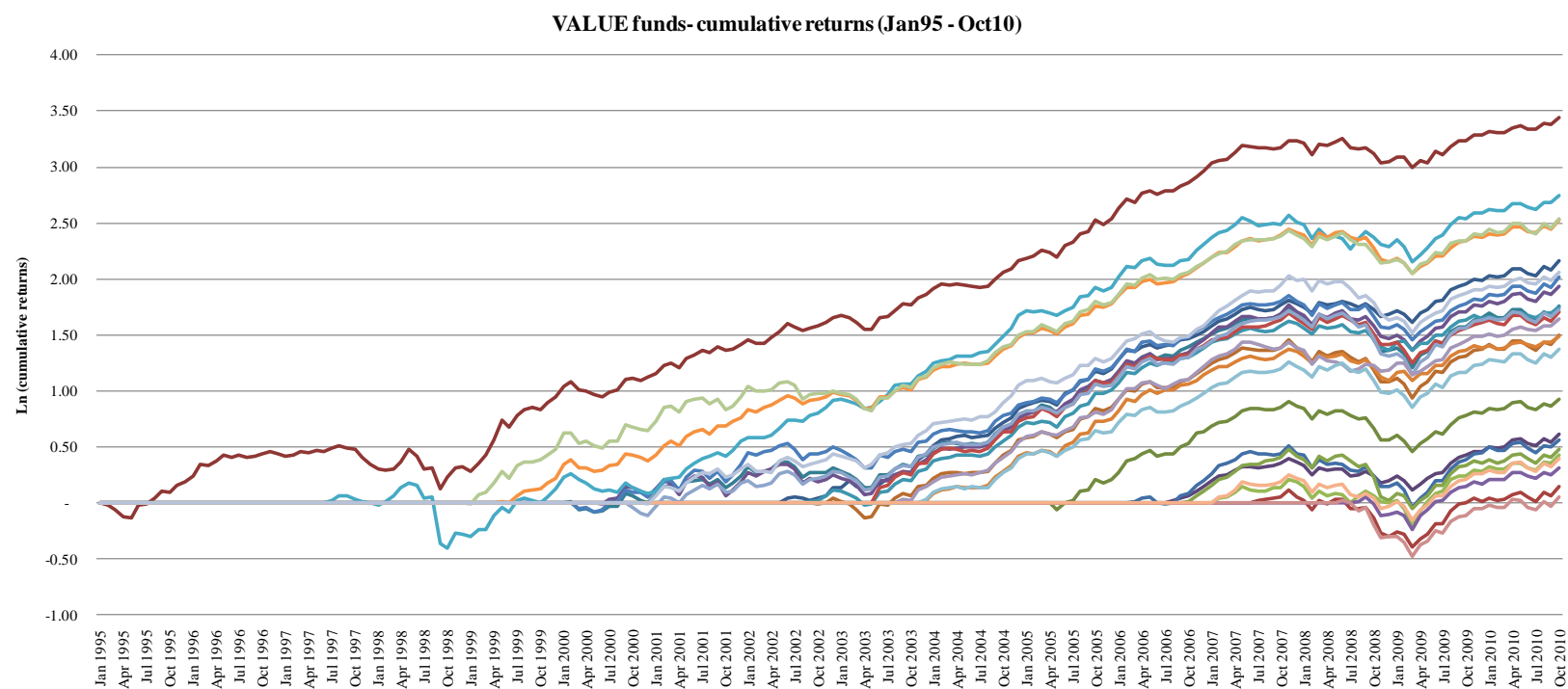
\*Mean monthly return per manager over their available investment period.

\*\*Number of monthly return observations available. It should be noted that GIPS (“Global Investment Performance Standards”) indicates that where a fund has active return data for less than a thirty six month period. Therefore, the standard deviations of both Orthogonal Equity Core and Orthogonal Equity Value with thirty and thirty one return observations should be interpreted with caution.

### FIGURE 3.2 FUND CUMULATIVE RETURN PERFORMANCE

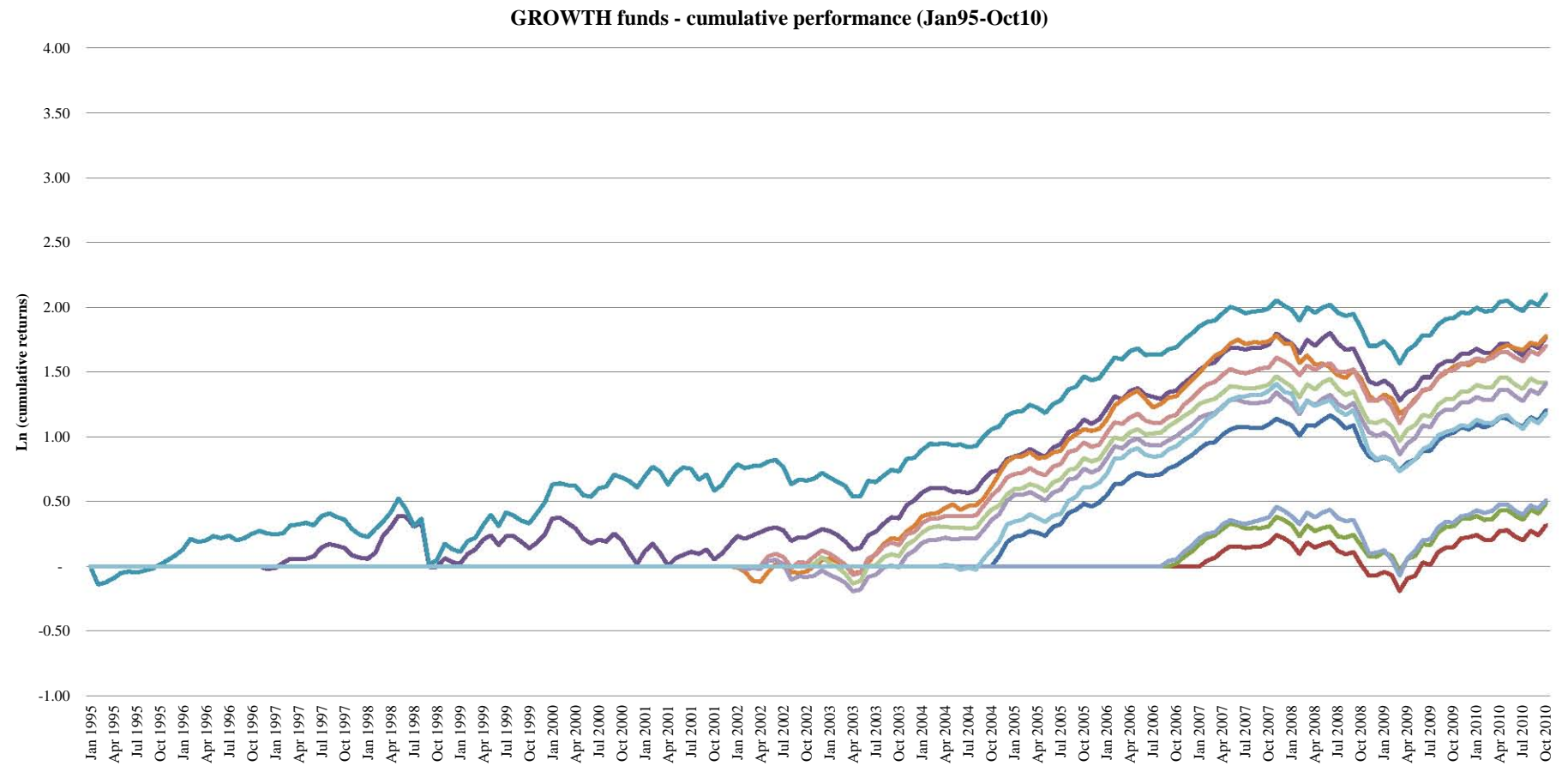
The chart below presents the cumulative return performance of the sample institutional fund managers per defined management style over the period January 1995 to October 2010. As the style classification per manager as sourced from RisCura Solutions (Pty) Ltd is proprietary information, the graphs per style do not present the individual fund names however do assist in demonstrating the differing return profile per style.

#### VALUE

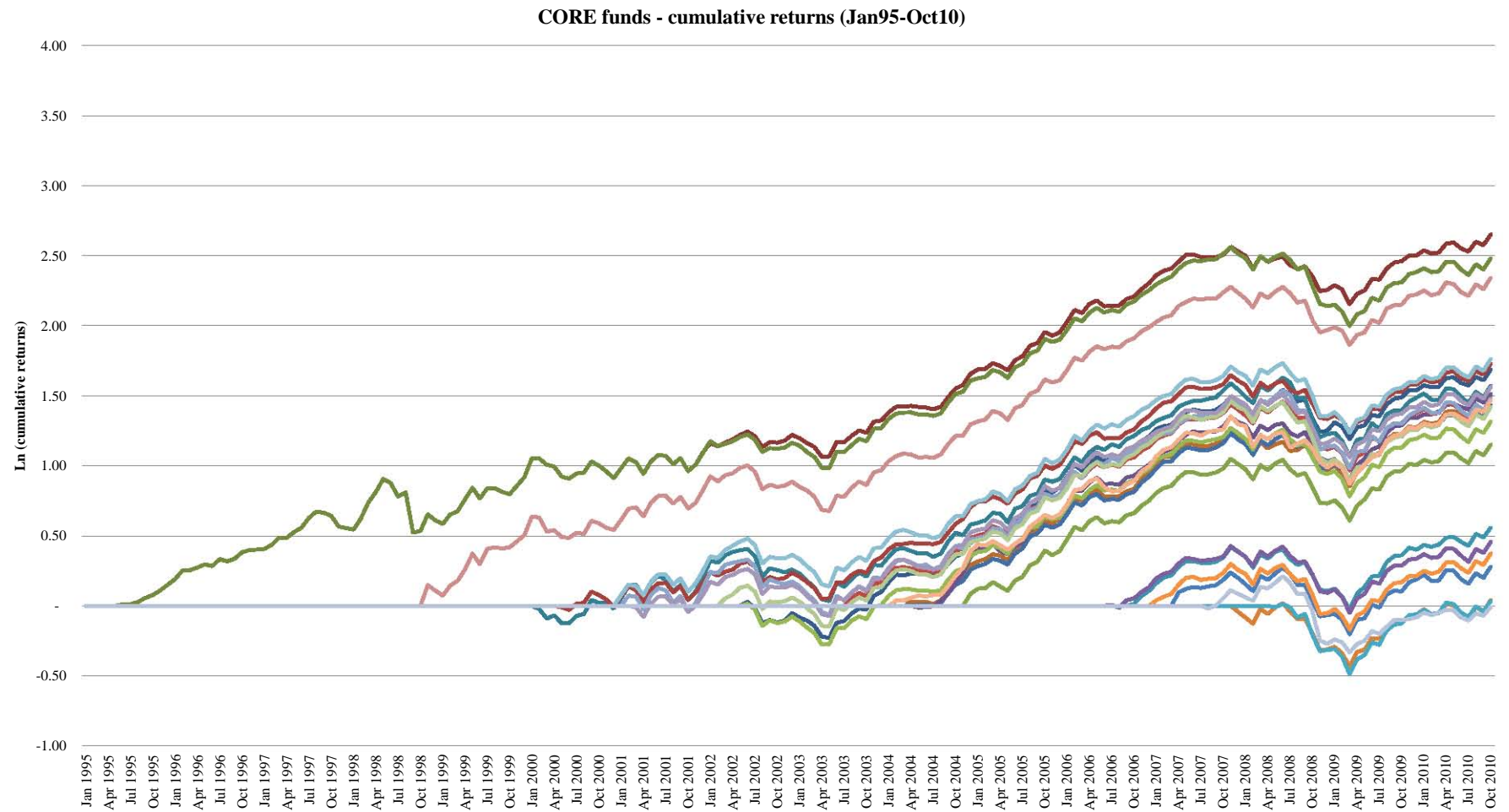




## GROWTH



## CORE



### 3.2.5 ADJUSTMENTS TO FUND RETURN DATA

There exist a number of sources of bias in any cross sectional study that may serve to hamper the interpretation of the results generated. Some of the common concerns identified by authors in the field are presented below with their possible impact on the integrity of the study at hand.

#### *Non-normality of returns*

The results of the Jarque Bera test for normality provide evidence to suggest that one of the 60 funds in the sample - Investec Value Equity had a return series that was non-normal. This may be attributable in part due to the fund holding non-resource based stocks over a large part of the investment period examined. As a result, any parametric analysis performed on such a return series may produce inaccurate, unreliable results.

#### *Data-Snooping Bias*

When engaging in a detailed study, researchers often employ the results of previous studies as a benchmark or guideline in order to validate their own methodology and subsequent outcomes. As in MacKinlay (1988), Black (1993), Haugen and Baker (1996), when researchers scrutinize the characteristics of a data source along with the generated results associated with such data and furthermore attempt to construct predictive models based on past trends, data snooping will be evident.

Tests of these new models that are grounded upon characteristics believed to be evident in the data analysed can lead to the generation of results that add little value, further emphasizing existing discoveries in a static, isolated environment. In order to prevent this occurring, different data sources and varied time periods should be employed in order to make the research more dynamic and practical. The dataset employed in this study can be regarded as 'fresh' as no study of equivalent rigor has been applied in an emerging market context using a like data source.

#### *Survivorship bias*

The number of funds present in the dataset increase chronologically. However, as the sample of funds contains large established funds that are unlikely to cease trading, survivorship bias is not a cause for concern.

#### *Outliers*

The presence of outliers amongst the collected returns data gives rise to additional grounds for alteration. According to Barnett and Lewis (1984) an 'outlier' is defined to be an observation in a set of data that appears to be inconsistent with the remainder of that set of data. They emphasize that 'appears to be inconsistent' is a crucial subjective consideration made by the observer with the chief concern being whether such observations are in fact members of the main population.

The inclusion of outliers in any form of regression procedure can have disastrous consequences. Such extreme observations shift the fit of the ordinary least squares regression line, and in so doing, tend to explain considerably less of the variation amongst the observations. Furthermore, these influential observations bias both the sensitivities and the magnitude of the coefficients of the respective independent variables making any inference with respect to both the nature and impact of proposed relationships inconclusive.

As the data sample includes actual institutional fund manager data, a detailed review of the descriptive statistics processed indicates a lack of any significant outliers that may impact the regression based analysis described in Section 5 of this study.

### **3.3 SUMMARY AND CONCLUSION**

This chapter serves to introduce the selected dataset used for testing in this paper. The dataset presented comprised index return data from four style indices and fund return data from a total of 60 South African fund managers.

Descriptive statistics performed indicated the prevalence of slight negative skewness amongst both the style index and manager return data.

Survivorship bias had been identified as a concern in samples of previous studies by diBartolomeo and Witkowski (1997) and Meyer (1997); however no notable adjustments had been made to compensate for any effect it may have. The current sample of manager return data contains large institutional fund managers that are unlikely to cease trading, therefore survivorship bias is considered to have minimal impact on the testing procedures in the chapters to follow.

## 4 METHODOLOGY

### 4.1 INTRODUCTION

A return based style analysis as applied in Sharpe (1988, 1992) and diBartolomeo and Witkowski (1997) is employed in order to assess the historic style classifications of the managers included in the current sample.

As indicated by diBartolomeo and Witkowski (1997), a returns-based analysis is preferred to one based on a set of observable characteristics for several reasons. Firstly, investors are primarily concerned with maximising positive returns and are often less concerned with the specific sources of return variation so long as their expected cash flow profile is realised. Secondly, a characteristics based approach requires the selection of a set of differentiating characteristics with which to establish classification boundaries. These boundaries, which are often based on arbitrary cut off levels of certain firm specific attributes such as Price/Earnings ratios, are inherently subjective and unstable. Infrequent reporting periods and the lack of data available, coupled with accounting irregularities common in reported figures are some of the common factors that may result in incorrect classification. All that is required for a returns-based approach however, is a sufficiently long series of returns, which in the case of this study is readily available.

### 4.2 METHODOLOGY

#### 4.2.1 DETERMINATION OF MANAGER STYLES

Sharpe (1988, 1992) presented an asset factor based model approach to determine manager asset allocation. This approach was based on an historic return series and a number of industry accepted asset classes. The current study employs a similar asset factor model incorporating as factors the constructed style indices provided by A-DEX, specifically the VALUE 60 and MOMENTUM 60 indices, in order to assess manager style over an historic return series.

A generic representation of the asset factor based model is presented below in equation (1):

(1)

Where,

Where,

A key assumption of the above model is that the non-factor returns of fund  $i$  ( ) is uncorrelated with that of every other . This assumption infers that the selected factors are the only sources of correlation among returns.

The above asset factor model can be considered a special version of the generic case. The model assumes that each factor represents the return on a different asset class, in the case of the current study the return on a specific equity style exposure with the resultant betas or exposures required to sum to 100%. The work of Sharpe (1988, 1992) indicated that such a quadratic programming technique has a minimal impact on the ability of the model to explain the variation in manager returns. The rationale for the constrained exposure to the selected style factors is to better represent the available investment strategies/alternatives available to any manager given their specific mandate, which exclude shorting i.e. negative coefficients whilst simultaneously minimizing the unexplained variation in manager returns. The recursive quadratic programming approach applied uses a rolling window period of 24 months. In this way manager styles are not assumed to remain constant but rather expected to be changeable over the period analysed.

Therefore, in effect, the return of any manager is represented by the return on the portfolio, more specifically the return on the exposures to each style factor plus the residual or non-factor manager return. The sum of the returns attributable to the style exposure can be considered the 'style' return, whilst the non-manager return defined as the 'selection' return.

As indicated, the aim of the quadratic programming approach is to determine the most accurate set of exposures that sum to 100% and conform to the manager return information given the specific mandates. More specifically, the best set of exposures is that which minimizes the variance of .

Equation (1) rearranged

The term can be interpreted as the difference between the return of the fund and that of the passive style portfolio of similar style. This difference is also termed the 'tracking error'. The

goal of the analysis is to minimize the variance of the difference or the ‘tracking variance’. The ultimate aim of the analysis is to infer as much as possible about the fund/manager’s exposures to variations in the returns of the defined style indices over the studied sample period.

#### 4.2.2 MANAGER EFFECTIVE STLYE MIX

The determination of the fund’s resultant style mix follows intuitively from the above analysis. Let  $\alpha_i$  represent that percentage of an investor’s portfolio invested in fund  $i$ , with the overall portfolio return equal to:

$$(4)$$

As equations (1) and (4) are linear, substitution results in the  $\alpha_i$  being able to be expressed as a function of each manager’s style exposures as presented below.

$$(5)$$

The  $\alpha_i$  values are the portfolio’s exposure to the defined style exposures. Each  $\alpha_i$  is the value-weighted average of each of the exposures of the portfolios constituent funds to each of the style indices. The above analysis demonstrates that diversification across different funds with different style exposures has the potential to minimize the variation of the non-factor component and so increase the variation attributable to the style selection component.

#### 4.2.3 MANAGER PERFORMANCE MEASUREMENT

Passive fund managers are expected to provide an investor with a return specific to a certain style, whilst active fund managers are expected to provide both a style and selection return. The ‘selection’ return can therefore be defined as the difference in the return of an active manager relative to a passive manager with a similar style allocation. To capture this ‘selection’ return below and above the passive manager’s return, investors are required to pay management and performance fees for active managers unlike only management fees for passive managers. The current study aims to assess the returns of a sample of active South African Institutional Managers relative to a constructed passive style benchmark in order to determine whether or not investors should be content with paying higher fees i.e. more specifically to determine whether or not the selection return provided by active managers is sufficient to justify the higher cost to investors.

The current study is performed in the South African context. Prior to 2003 the JSE had not yet constructed the SWIX, the relevant South African market proxy. In order to avoid the subjective backward calculation of the SWIX prior to 2003, the 1<sup>st</sup> of January 2003 is selected as the start date for the current study, with the end date approximately seven years later on the 31<sup>st</sup> of October 2010.

For each fund, the following approach is followed on a monthly basis:

- The fund style is determined using the returns from months  $t-24$  through to  $t-1$ ;
- The return on the effective style mix is then calculated in month  $t$ ;
- The difference between the fund's return and the aforementioned return is calculated and classified as the manager's selection return for month  $t$ .

The above recursive quadratic programming technique is completed on a rolling basis until a monthly passive style index return and a selection return is determined over the entire return period. From this output, (1) fund/manager style can be assessed relative to defined mandates and (2) fund/manager performance can be assessed relative to a specifically constructed passive style portfolio/benchmark in order to determine whether or not the selection return realized is in fact justifiable.

### 4.3 FACTOR MODEL EVALUATION

The usefulness of any asset factor model to explain fund return variation is dependent on the style indices selected for implementation. As the style indices provided by A-DEX are fully tradable and have significantly different returns to each other, the constructed factor models can be useful in describing manager return variation. Refer to section 8 for additional detail in this regard.

Factor models are typically evaluated by their ability to explain the returns of the manager/asset in question. The traditional statistical measure used to explain this would be  $R^2$ , which measures the proportion of return variation explained by the selected factor model.  $R^2$  can be defined as follows:

$$\text{---} \quad (2)$$

It is important to note that the above measure only serves to explain the variation in the data sample analysed. The true test of a factor model is its ability to explain the variation in manager returns out of sample, as conducted in the current study.

### 4.4 SUMMARY AND CONCLUSION

The above mentioned approach, through the construction of a robust style based factor model, aims to assess both the actual style and performance of the sample of the SA Institutional Fund Managers. The analysis will assist in the identification of mis-classified fund managers amongst the various defined style categories. Furthermore, the results should assist in establishing whether or not selection returns generated by active managers warrant higher management fees relative to passive style based portfolios.



## 5 FINDINGS

### 5.1 INTRODUCTION

The section below present the results of the application of a variant of the Sharpe (1988, 1992) factor model based approach applied to the sample of institutional equity managers. The results have been grouped by their respective style classification i.e. (1) Value, (2) Growth and (3) Core. Results have been assessed by reviewing the manager's expected style, along with their annualized mean monthly return and standard deviation relative to the following categories/criteria:

- Average investment style/effective exposure as explained by the SWIX, VALUE 60 and MOMENTUM 60 indices over the fund's available investment period.
- Current investment style/effective exposure as explained by the SWIX, VALUE 60 and MOMENTUM 60 indices at the last available date – in the case of this study 31 October 2010.
- The performance of the active fund relative to the constructed style based 'shadow' benchmark. Key statistics such as R-squared and F-statistic of the fund vs. shadow portfolio return regression are presented here to assess the effectiveness of the specific factor based model.
- The performance of the active fund relative to the fund's specific market based benchmark or where this is unknown, the SWIX - a proxy for a reasonable South African market based benchmark. Key statistics such as the R-square and F-statistic of the fund vs. SWIX return regression are presented here to assess the degree to which the fund tracks the overall South African market.

**TABLE 5.1 EFFECTIVE STYLE EXPOSURE PER FUND**

The table below presents both the average effective style exposure of each fund over their respective investment period and the current manager style at 31 October 2010.

Fund/Manager	Nr. of returns	Fund returns*		Benchmark returns		Fund vs. Target benchmark**				Avg. manager style***			Current manager style (Oct10)****		
		$\mu$ fund return (%pa)	$\sigma$ fund return (%pa)	SWIX return (%pa)	Fund target benchmark (%pa)	Target benchmark	Active return (%pa)	Tracking error (%pa)	IR	SWIX	VALUE	MOM	SWIX	VALUE	MOM
Abax Equity	73	13.6%	16.8%	13.9%	13.9%	SWIX	-0.2%	5.6%	-0.04	76%	13%	11%	42%	30%	28%
ABSA Asset Management Core Equity	94	25.4%	16.7%	20.9%	21.6%	ALSI	3.1%	4.5%	0.70	90%	5%	5%	71%	18%	11%
ABSA Asset Management Value	94	26.8%	14.6%	20.9%	21.6%	ALSI	4.3%	6.9%	0.62	78%	17%	5%	80%	15%	5%
Advantage Focused Equity FOF	94	19.9%	16.0%	20.9%	20.9%	SWIX	-0.9%	3.2%	-0.27	82%	15%	2%	73%	13%	13%
Advantage Moderate Equity FOF	94	18.4%	17.9%	20.9%	20.9%	SWIX	-2.1%	3.4%	-0.62	96%	0%	4%	91%	0%	9%
Afena Capital Equity CAPI	46	25.9%	19.8%	26.1%	26.9%	CAPI	-0.8%	2.7%	-0.30	80%	19%	1%	93%	0%	7%
Afena Capital Equity SWIX	50	15.0%	20.0%	11.9%	11.9%	SWIX	2.8%	4.3%	0.66	65%	35%	0%	83%	11%	6%
Allan Gray Specialist Domestic Equity	94	25.7%	16.2%	20.9%	20.9%	SWIX	4.0%	6.5%	0.61	76%	20%	4%	70%	0%	30%
Argon Domestic Value Equity	67	6.7%	16.9%	8.2%	8.2%	SWIX	-1.4%	6.0%	-0.23	77%	22%	1%	50%	50%	0%
Aylett Equity Fund	52	18.9%	14.5%	9.2%	5.7%	ALSI	12.5%	12.1%	1.03	45%	55%	0%	42%	52%	6%
Cadiz Enhanced Index	94	21.4%	20.2%	20.9%	20.9%	SWIX	0.4%	6.0%	0.06	94%	0%	6%	100%	0%	0%
Cadiz Equity ALSI	94	20.6%	18.9%	20.9%	21.6%	ALSI	-0.9%	3.4%	-0.25	100%	0%	0%	98%	0%	2%
Cadiz Equity SWIX	94	19.2%	18.3%	20.9%	20.9%	SWIX	-1.5%	3.5%	-0.42	80%	13%	7%	94%	6%	0%
Cadiz Mastermind	57	13.0%	20.8%	10.8%	10.8%	SWIX	2.0%	7.5%	0.27	53%	47%	0%	71%	29%	0%
Cannon All Equities SWIX	41	29.6%	15.9%	28.2%	27.5%	ALSI	1.7%	7.6%	0.23	43%	41%	16%	33%	50%	18%
Cannon ALSI Institutional Composite	50	10.9%	22.9%	11.9%	10.4%	ALSI	0.5%	8.8%	0.06	51%	22%	27%	19%	57%	24%
Coronation Aggressive Equity	82	24.2%	17.0%	20.9%	20.9%	SWIX	3.4%	4.8%	0.71	80%	20%	0%	75%	25%	0%
Coronation Core Equity	80	24.1%	16.9%	20.9%	20.9%	SWIX	3.5%	3.4%	1.02	89%	11%	0%	89%	11%	1%
Coronation Houseview Equity	94	24.0%	14.6%	20.9%	20.9%	SWIX	2.6%	4.1%	0.62	80%	18%	3%	70%	25%	6%

		Fund returns*		Benchmark returns		Fund vs. Target benchmark**				Avg. manager style***			Current manager style (Oct10)****		
Fund/Manager	Nr. of returns	$\mu$ fund return (%pa)	$\sigma$ fund return (%pa)	SWIX return (%pa)	Fund target benchmark (%pa)	Target benchmark	Active return (%pa)	Tracking error (%pa)	IR	SWIX	VALUE	MOM	SWIX	VALUE	MOM
Element Equity	94	21.0%	14.2%	20.9%	20.9%	SWIX	0.0%	7.2%	0.00	63%	27%	10%	12%	54%	35%
Element Specialist Equity	84	18.0%	14.6%	18.3%	18.3%	SWIX	-0.2%	7.5%	-0.03	63%	27%	10%	9%	58%	33%
Foord Specialist Domestic Equity	94	23.5%	16.8%	20.9%	20.9%	SWIX	2.1%	4.5%	0.47	80%	17%	4%	48%	37%	14%
Huysamer Equity	90	21.1%	17.4%	22.3%	22.3%	SWIX	-1.0%	4.2%	-0.24	95%	5%	0%	94%	6%	0%
Investec Contrarian Equity	45	28.6%	21.8%	26.1%	26.1%	SWIX	2.0%	8.5%	0.23	19%	81%	0%	50%	50%	0%
Investec Growth Equity	94	19.9%	18.7%	20.9%	21.6%	ALSI	-1.4%	6.2%	-0.23	83%	3%	9%	63%	11%	26%
Investec RI Equity fund	28	45.7%	13.7%	62.3%	63.7%	ALSI	-11.4%	6.2%	-1.83	59%	41%	0%	63%	37%	0%
Investec Value Equity	94	22.0%	18.5%	20.9%	21.6%	ALSI	0.3%	13.6%	0.02	32%	52%	16%	12%	88%	0%
Investment Solutions Pure Equity Local	94	20.5%	16.2%	20.9%	20.9%	SWIX	-0.4%	3.0%	-0.14	79%	15%	6%	70%	13%	17%
Kagiso Core Swix Fund	72	14.0%	18.4%	12.7%	12.7%	SWIX	1.2%	2.3%	0.53	93%	5%	3%	87%	13%	0%
Kagiso Equity Alpha Fund UT	79	16.6%	16.5%	13.8%	13.8%	SWIX	2.6%	5.1%	0.50	70%	19%	11%	44%	56%	0%
Kagiso Managed Equity Fund	50	15.3%	20.1%	11.9%	11.9%	SWIX	3.1%	4.6%	0.68	82%	18%	0%	68%	32%	0%
Mergence Africa All Equity Fund (Swix)	36	16.1%	16.9%	20.7%	20.7%	SWIX	-3.9%	1.7%	-2.31	100%	0%	0%	100%	0%	0%
Mergence Africa SA Equity Fund (Capi)	44	37.8%	18.1%	40.2%	41.2%	CAPI	-2.4%	1.6%	-1.48	99%	0%	1%	100%	0%	0%
Metropolitan Managed Equity Portfolio	94	19.1%	18.0%	20.9%	20.9%	SWIX	-1.6%	2.7%	-0.59	90%	10%	0%	72%	28%	0%
Oasis Specialist Domestic Equity	94	20.6%	15.7%	20.9%	20.9%	SWIX	-0.3%	4.3%	-0.06	70%	19%	11%	16%	84%	0%
OMIGSA Core Equity CAPI Portfolio	88	20.3%	18.5%	20.6%	21.1%	CAPI	-0.7%	2.3%	-0.29	99%	0%	1%	100%	0%	0%
OMIGSA Core Equity Portfolio	94	19.6%	17.8%	20.9%	20.9%	SWIX	-1.1%	2.9%	-0.39	94%	5%	1%	91%	9%	0%
OMIGSA Core Equity SWIX	53	4.6%	21.0%	6.0%	6.0%	SWIX	-1.3%	2.7%	-0.49	94%	6%	0%	92%	8%	0%
OMIGSA ELECTUS GARP Portfolio	94	21.0%	17.9%	20.9%	20.9%	SWIX	0.1%	5.2%	0.02	79%	13%	8%	71%	29%	0%
OMIGSA ELECTUS Multi-Cap Portfolio	51	11.6%	22.6%	12.0%	12.0%	SWIX	-0.3%	5.0%	-0.07	91%	9%	0%	79%	21%	0%

		Fund returns*		Benchmark returns		Fund vs. Target benchmark**				Avg. manager style***			Current manager style (Oct10)****		
Fund/Manager	Nr. of returns	$\mu$ fund return (%pa)	$\sigma$ fund return (%pa)	SWIX return (%pa)	Fund target benchmark (%pa)	Target benchmark	Active return (%pa)	Tracking error (%pa)	IR	SWIX	VALUE	MOM	SWIX	VALUE	MOM
OMIGSA Investment Research Small Cap Growth	94	19.9%	17.9%	20.9%	24.3%	JSE Small Cap	-3.6%	5.5%	-0.64	28%	43%	29%	0%	79%	21%
OMIGSA Value Equity Investments Value Portfolio	94	19.7%	19.2%	20.9%	20.9%	SWIX	-1.0%	4.6%	-0.22	89%	2%	8%	100%	0%	0%
Orthogonal Equity Core	31	11.7%	19.6%	17.2%	17.2%	SWIX	-4.8%	4.5%	-1.06	100%	0%	0%	100%	0%	0%
Orthogonal Equity Value	30	16.1%	21.2%	19.0%	19.0%	SWIX	-2.4%	4.5%	-0.54	100%	0%	0%	100%	0%	0%
Prescient Equity Active Quant Fund	47	28.2%	18.0%	26.8%	26.2%	JSE Top 40	1.6%	4.1%	0.39	91%	4%	5%	91%	8%	1%
Prescient Equity Quant Fund	94	21.6%	19.6%	20.9%	20.9%	SWIX	0.6%	5.8%	0.10	93%	0%	7%	100%	0%	0%
Prudential Core Equity ALSI	94	21.8%	17.5%	20.9%	21.6%	ALSI	0.1%	3.4%	0.04	97%	0%	3%	83%	0%	17%
Prudential Deep Value Equity	94	21.2%	16.5%	20.9%	20.9%	SWIX	0.2%	3.4%	0.05	94%	5%	1%	86%	0%	14%
RE:CM Equity Composite	87	20.1%	15.1%	19.2%	19.5%	ALSI	0.5%	12.9%	0.04	44%	49%	6%	12%	59%	29%
RMBAM Equity 50% Resources	92	19.5%	17.9%	20.9%	24.2%	JSE RESI	-5.6%	18.1%	-0.31	88%	10%	2%	89%	9%	2%
RMBAM Equity Capped Index	94	18.2%	18.2%	20.9%	21.9%	CAPI	-3.1%	5.4%	-0.57	76%	12%	12%	74%	13%	13%
RMBAM Equity Domestic Houseview	84	18.5%	17.3%	18.3%	18.5%	ALSI	0.1%	5.7%	0.03	86%	13%	1%	98%	2%	0%
SIM Unconstrained Equity	46	27.3%	18.7%	26.1%	26.1%	SWIX	0.9%	3.2%	0.29	61%	39%	0%	82%	18%	0%
STANLIB Core Equity	94	20.2%	18.9%	20.9%	20.9%	SWIX	-0.7%	3.4%	-0.20	87%	2%	11%	74%	8%	19%
STANLIB Enhanced Index	94	21.5%	18.0%	20.9%	20.9%	SWIX	0.5%	2.6%	0.17	94%	0%	5%	90%	1%	9%
STANLIB Financial & Industrial Fund	82	18.6%	18.6%	16.2%	15.8%	JSE FINDI	2.5%	5.2%	0.48	48%	39%	14%	16%	71%	14%
STANLIB Growth Equity	80	18.0%	18.9%	20.9%	22.8%	ALSI	-4.7%	9.7%	-0.48	46%	25%	29%	5%	55%	40%
STANLIB Research	94	21.4%	18.3%	20.9%	20.9%	SWIX	0.3%	2.7%	0.13	93%	0%	7%	87%	4%	8%

Fund/Manager	Nr. of returns	Fund returns*		Benchmark returns		Fund vs. Target benchmark**				Avg. manager style***			Current manager style (Oct10)****		
		$\mu$ fund return (%pa)	$\sigma$ fund return (%pa)	SWIX return (%pa)	Fund target benchmark (%pa)	Target benchmark	Active return (%pa)	Tracking error (%pa)	IR	SWIX	VALUE	MOM	SWIX	VALUE	MOM
STANLIB Shariah Equity Fund	40	18.7%	11.0%	31.5%	27.5%	JSE Shariah	-7.1%	10.4%	-0.68	59%	4%	37%	43%	34%	23%
STANLIB Value	94	20.2%	16.8%	20.9%	21.6%	ALSI	-1.2%	9.4%	-0.13	53%	25%	22%	35%	60%	5%

\*Annualized monthly mean fund return and standard deviation over sample period.

\*\*Annualized monthly mean fund return relative to the return on the SWIX and each fund's specific target benchmark. Where the target benchmark is not determined, the SWIX is assumed as a market based benchmark. The 'Active return' being the return of the fund less the return of the target benchmark is presented, along with its Tracking error and Information ratio, 'IR'. The Tracking error is the standard deviation of the 'Active return', whilst the IC expressed the Active return as a ratio of the Tracking error. The IC determines the fund's ability to generate consistent returns above its benchmark by accounting for both relative performance and volatility. The higher the IC the more consistent a fund is at outperforming its benchmark.

\*\*\*Average style exposure per index over each fund's specific sample period as indicated by the variant of the Sharpe (1988, 1992) factor model. The 'Average' is calculated as the liner average of the effective exposure value per month over each fund's respective output period ending 31 October 2010.

\*\*\*\*Current style exposure per index at the end of the last available monthly period – Oct10.

**TABLE 5.2 FUND RELATIVE RETURN PERFORMANCE**

The table below presents the realised returns per fund relative to its target benchmark, its passive style shadow portfolio and its benchmark using the Jensen measure.

Fund/Manager	Nr. of returns	Fund vs. Target benchmark*				Fund vs. Passive style shadow**							Jensen alpha***		
		Target benchmark	Active return (%pa)	Tracking error (%pa)	IR	Active return (%pa)	Tracking error (%pa)	IR	R Square	F statistic (p-value)	Beta	t-stat(alpha)	R Square	Beta	t-stat(alpha)
Abax Equity	73	SWIX	-0.2%	5.6%	-0.04	-0.7%	5.4%	-0.14	91.9%	0.0%	0.87	-0.01	91.6%	0.86	0.02
ABSA Asset Management Core Equity	94	ALSI	3.1%	4.5%	0.70	3.6%	4.5%	0.79	93.7%	0.0%	0.91	0.31	94.2%	0.91	0.32
ABSA Asset Management Value	94	ALSI	4.3%	6.9%	0.62	4.9%	5.4%	0.91	92.5%	0.0%	0.80	0.48	93.3%	0.80	0.52
Advantage Focused Equity FOF	94	SWIX	-0.9%	3.2%	-0.27	-1.5%	2.6%	-0.60	98.2%	0.0%	0.91	-0.08	97.4%	0.89	0.03
Advantage Moderate Equity FOF	94	SWIX	-2.1%	3.4%	-0.62	-2.4%	3.5%	-0.69	96.4%	0.0%	0.98	-0.18	96.4%	0.99	-0.17
Afena Capital Equity CAPI	46	CAPI	-0.8%	2.7%	-0.30	-0.8%	4.9%	-0.16	94.3%	0.0%	1.06	-0.10	95.4%	1.04	-0.06
Afena Capital Equity SWIX	50	SWIX	2.8%	4.3%	0.66	0.4%	3.6%	0.12	96.9%	0.0%	0.98	0.04	96.1%	0.93	0.22
Allan Gray Specialist Domestic Equity	94	SWIX	4.0%	6.5%	0.61	3.2%	6.4%	0.51	86.6%	0.0%	0.88	0.22	86.7%	0.85	0.26
Argon Domestic Value Equity	67	SWIX	-1.4%	6.0%	-0.23	-2.7%	5.3%	-0.51	92.4%	0.0%	0.87	-0.17	91.4%	0.84	-0.09
Aylett Equity Fund	52	ALSI	12.5%	12.1%	1.03	4.0%	6.7%	0.59	91.7%	0.0%	0.73	0.36	87.5%	0.66	0.49
Cadiz Enhanced Index	94	SWIX	0.4%	6.0%	0.06	0.5%	6.3%	0.08	90.1%	0.0%	1.06	0.00	91.8%	1.09	-0.03
Cadiz Equity ALSI	94	ALSI	-0.9%	3.4%	-0.25	-0.5%	4.1%	-0.12	95.6%	0.0%	1.03	-0.06	95.9%	1.04	-0.06
Cadiz Equity SWIX	94	SWIX	-1.5%	3.5%	-0.42	-2.1%	3.3%	-0.63	96.9%	0.0%	1.03	-0.21	96.4%	1.01	-0.13
Cadiz Mastermind	57	SWIX	2.0%	7.5%	0.27	-1.4%	5.8%	-0.24	92.5%	0.0%	1.05	-0.08	87.5%	0.94	0.08
Cannon All Equities SWIX	41	ALSI	1.7%	7.6%	0.23	-2.1%	5.1%	-0.41	90.0%	0.0%	1.01	-0.12	88.5%	0.98	0.07
Cannon ALSI Institutional Composite	50	ALSI	0.5%	8.8%	0.06	-3.0%	6.2%	-0.48	93.3%	0.0%	1.07	-0.16	91.1%	1.03	-0.04
Coronation Aggressive Equity	82	SWIX	3.4%	4.8%	0.71	2.1%	3.9%	0.54	95.2%	0.0%	0.99	0.16	93.1%	0.94	0.23
Coronation Core Equity	80	SWIX	3.5%	3.4%	1.02	2.7%	3.3%	0.84	96.6%	0.0%	0.96	0.27	96.6%	0.94	0.33
Coronation Houseview Equity	94	SWIX	2.6%	4.1%	0.62	2.0%	3.9%	0.51	95.2%	0.0%	0.95	0.19	94.8%	0.93	0.24

Fund/Manager	Nr. of returns	Fund vs. Target benchmark*				Fund vs. Passive style shadow**							Jensen alpha***		
		Target benchmark	Active return (%pa)	Tracking error (%pa)	IR	Active return (%pa)	Tracking error (%pa)	IR	R Square	F statistic (p-value)	Beta	t-stat(alpha)	R Square	Beta	t-stat(alpha)
Element Equity	94	SWIX	0.0%	7.2%	0.00	-1.4%	6.9%	-0.20	86.1%	0.0%	0.76	0.08	85.6%	0.74	0.14
Element Specialist Equity	84	SWIX	-0.2%	7.5%	-0.03	-2.2%	7.0%	-0.32	86.4%	0.0%	0.74	0.02	85.4%	0.72	0.10
Foord Specialist Domestic Equity	94	SWIX	2.1%	4.5%	0.47	0.7%	3.9%	0.18	95.0%	0.0%	0.95	0.10	93.8%	0.92	0.20
Huysamer Equity	90	SWIX	-1.0%	4.2%	-0.24	-1.1%	4.2%	-0.27	94.7%	0.0%	0.94	-0.03	94.7%	0.94	-0.02
Investec Contrarian Equity	45	SWIX	2.0%	8.5%	0.23	-0.4%	7.5%	-0.05	90.4%	0.0%	1.18	-0.15	85.6%	1.08	0.02
Investec Growth Equity	94	ALSI	-1.4%	6.2%	-0.23	-1.2%	3.6%	-0.33	96.5%	0.0%	1.03	-0.12	96.1%	1.03	-0.10
Investec RI Equity fund	28	ALSI	-11.4%	6.2%	-1.83	-9.1%	5.9%	-1.53	93.5%	0.0%	0.73	0.11	94.1%	0.68	0.19
Investec Value Equity	94	ALSI	0.3%	13.6%	0.02	-1.9%	7.8%	-0.25	82.7%	0.0%	0.99	-0.06	70.1%	0.87	0.06
Investment Solutions Pure Equity Local	94	SWIX	-0.4%	3.0%	-0.14	-1.2%	2.7%	-0.45	98.0%	0.0%	0.92	-0.04	97.8%	0.91	0.07
Kagiso Core Swix Fund	72	SWIX	1.2%	2.3%	0.53	0.7%	2.3%	0.32	98.6%	0.0%	0.98	0.10	98.5%	0.97	0.16
Kagiso Equity Alpha Fund UT	79	SWIX	2.6%	5.1%	0.50	0.4%	4.8%	0.09	93.1%	0.0%	0.89	0.07	92.7%	0.88	0.18
Kagiso Managed Equity Fund	50	SWIX	3.1%	4.6%	0.68	2.3%	4.2%	0.56	96.1%	0.0%	0.95	0.18	95.5%	0.93	0.22
Mergence Africa All Equity Fund (Swix)	36	SWIX	-3.9%	1.7%	-2.31	-3.9%	1.7%	-2.32	99.3%	0.0%	1.06	-0.97	99.3%	1.06	-0.97
Mergence Africa SA Equity Fund (Capi)	44	CAPI	-2.4%	1.6%	-1.48	-1.8%	3.8%	-0.46	96.4%	0.0%	1.11	-0.36	96.4%	1.10	-0.35
Metropolitan Managed Equity Portfolio	94	SWIX	-1.6%	2.7%	-0.59	-1.9%	2.4%	-0.77	98.2%	0.0%	1.02	-0.25	97.8%	0.99	-0.17
Oasis Specialist Domestic Equity	94	SWIX	-0.3%	4.3%	-0.06	-1.6%	3.7%	-0.42	96.1%	0.0%	0.88	-0.02	95.0%	0.86	0.10
OMIGSA Core Equity CAPI Portfolio	88	CAPI	-0.7%	2.3%	-0.29	-0.3%	3.2%	-0.10	97.1%	0.0%	1.00	-0.03	97.2%	1.01	-0.03
OMIGSA Core Equity Portfolio	94	SWIX	-1.1%	2.9%	-0.39	-1.4%	2.9%	-0.46	97.4%	0.0%	0.99	-0.13	97.4%	0.99	-0.10
OMIGSA Core Equity SWIX	53	SWIX	-1.3%	2.7%	-0.49	-1.5%	2.7%	-0.56	98.4%	0.0%	1.00	-0.16	98.4%	1.00	-0.14

Fund/Manager	Nr. of returns	Fund vs. Target benchmark*				Fund vs Passive style shadow**							Jensen alpha***		
		Target benchmark	Active return (%pa)	Tracking error (%pa)	IR	Active return (%pa)	Tracking error (%pa)	IR	R Square	F statistic (p-value)	Beta	t-stat(alpha)	R Square	Beta	t-stat(alpha)
OMIGSA ELECTUS GARP Portfolio	94	SWIX	0.1%	5.2%	0.02	-0.8%	5.2%	-0.15	91.7%	0.0%	0.98	-0.03	91.8%	0.96	0.03
OMIGSA ELECTUS Multi-Cap Portfolio	51	SWIX	-0.3%	5.0%	-0.07	-1.1%	5.0%	-0.22	95.8%	0.0%	1.09	-0.09	95.6%	1.07	-0.03
OMIGSA Investment Research Small Cap Growth	94	JSE Small Cap	-3.6%	5.5%	-0.64	-3.2%	10.2%	-0.31	70.3%	0.0%	0.87	-0.04	67.0%	0.82	0.03
OMIGSA Value Equity Investments Value Portfolio	94	SWIX	-1.0%	4.6%	-0.22	-1.1%	4.7%	-0.24	94.3%	0.0%	1.04	-0.10	94.6%	1.05	-0.10
Orthogonal Equity Core	31	SWIX	-4.8%	4.5%	-1.06	-4.8%	4.5%	-1.06	94.8%	0.0%	1.00	-0.34	94.8%	1.00	-0.34
Orthogonal Equity Value	30	SWIX	-2.4%	4.5%	-0.54	-2.4%	4.5%	-0.54	95.5%	0.0%	1.00	-0.17	95.5%	1.00	-0.17
Prescient Equity Active Quant Fund	47	JSE Top 40	1.6%	4.1%	0.39	0.6%	1.1%	0.51	99.6%	0.0%	1.00	0.13	99.7%	0.99	0.40
Prescient Equity Quant Fund	94	SWIX	0.6%	5.8%	0.10	0.6%	6.0%	0.09	90.9%	0.0%	1.03	0.01	91.7%	1.05	0.00
Prudential Core Equity ALSI	94	ALSI	0.1%	3.4%	0.04	0.6%	4.6%	0.14	93.6%	0.0%	0.94	0.08	93.0%	0.95	0.08
Prudential Deep Value Equity	94	SWIX	0.2%	3.4%	0.05	0.0%	3.5%	0.00	96.5%	0.0%	0.91	0.08	96.6%	0.91	0.10
RE:CM Equity Composite	87	ALSI	0.5%	12.9%	0.04	-2.1%	8.4%	-0.25	76.4%	0.0%	0.77	0.02	68.3%	0.69	0.12
RMBAM Equity 50% Resources	92	JSE RESI	-5.6%	18.1%	-0.31	-1.8%	2.9%	-0.60	97.3%	0.0%	0.99	-0.17	97.5%	0.99	-0.16
RMBAM Equity Capped Index	94	CAPI	-3.1%	5.4%	-0.57	-2.9%	4.2%	-0.69	94.7%	0.0%	1.00	-0.20	95.4%	0.99	-0.17
RMBAM Equity Domestic Houseview	84	ALSI	0.1%	5.7%	0.03	-0.9%	3.4%	-0.26	96.5%	0.0%	0.95	-0.04	96.9%	0.94	0.06
SIM Unconstrained Equity	46	SWIX	0.9%	3.2%	0.29	-0.3%	3.2%	-0.10	97.1%	0.0%	1.02	-0.06	97.0%	0.99	0.10
STANLIB Core Equity	94	SWIX	-0.7%	3.4%	-0.20	-1.3%	3.0%	-0.43	97.5%	0.0%	1.03	-0.15	97.1%	1.05	-0.10
STANLIB Enhanced Index	94	SWIX	0.5%	2.6%	0.17	0.2%	2.6%	0.08	98.0%	0.0%	0.99	0.04	97.9%	1.00	0.05
STANLIB Financial & Industrial Fund	82	JSE FINDI	2.5%	5.2%	0.48	-1.3%	7.2%	-0.17	85.4%	0.0%	0.99	-0.05	81.0%	0.93	0.09
STANLIB Growth Equity	80	ALSI	-4.7%	9.7%	-0.48	-6.7%	7.1%	-0.94	86.5%	0.0%	1.00	-0.28	84.3%	0.98	-0.16
STANLIB Research	94	SWIX	0.3%	2.7%	0.13	0.0%	2.5%	-0.01	98.2%	0.0%	1.00	-0.01	98.0%	1.02	0.02



Fund/Manager	Nr. of returns	Fund vs. Target benchmark*				Fund vs Passive style shadow**							Jensen alpha***		
		Target benchmark	Active return (%pa)	Tracking error (%pa)	IR	Active return (%pa)	Tracking error (%pa)	IR	R Square	F statistic (p-value)	Beta	t-stat(alpha)	R Square	Beta	t-stat(alpha)
STANLIB Shariah Equity Fund	40	JSE Shariah	-7.1%	10.4%	-0.68	-12.2%	7.8%	-1.56	82.2%	0.0%	0.61	-0.24	82.6%	0.65	-0.19
STANLIB Value	94	ALSI	-1.2%	9.4%	-0.13	-1.9%	7.8%	-0.25	82.1%	0.0%	0.84	0.00	83.5%	0.86	0.03

\*Annualized monthly mean fund return relative to the return on the SWIX and each fund's specific target benchmark. Where the target benchmark is not determined, the SWIX is assumed as a market based benchmark. The 'Active return' being the return of the fund less the return of the target benchmark is presented, along with its Tracking error and Information ratio, 'IR'. The Tracking error is the standard deviation of the 'Active return', whilst the IC expressed the Active return as a ratio of the Tracking error. The IC determines the fund's ability to generate consistent returns above its benchmark by accounting for both relative performance and volatility. The higher the IC the more consistent a fund is at outperforming its benchmark.

\*\*Annualized monthly mean fund return relative to the return on the constructed passive style shadow portfolio. The 'Active return' being the return of the fund less the return of the passive style shadow portfolio is presented, along with its Tracking error and Information ratio, 'IR'. The Tracking error is the standard deviation of the 'Active return', whilst the IC expressed the Active return as a ratio of the Tracking error. The IC determines the fund's ability to generate consistent returns above its passive style shadow benchmark by accounting for both relative performance and volatility. The higher the IC the more consistent a fund is at outperforming its benchmark. In addition, the T-statistic of the regression of the returns of the fund versus that of the constructed passive style shadow portfolio is presented. A t-statistic significantly greater than zero indicates fund outperformance; whilst a t-statistic significantly less than zero indicates fund underperformance.

\*\*\*The Jensen alpha presented the relative performance per fund when applying the CAPM with the SWIX as the market proxy.

## **5.2 VALUE MANAGERS**

### **5.2.1 INTRODUCTION**

A total of 25 of the 60 funds included in the sample were classified as following a 'Value' based investment philosophy. On average the aforementioned funds appeared to exhibit a significant Value orientation with a 26% effective exposure to the VALUE 60 index over the investment period and a 33% effective exposure as at 31 October 2010. However, upon closer inspection several special cases are observed and necessitate further discussion.

### **5.2.2 EVIDENCE OF STYLE MISSPECIFICATION**

An analysis of the output suggests that the effective style of 20 of the 25 managers classified as 'Value' show significant exposures to the VALUE 60 index over the investment period. Several managers are found to have significant exposures to either the SWIX or the MOMENTUM 60 index over the investment period despite indicating prescription to a Value based philosophy. In order for the analysis to remain relevant, the specific mandate restrictions of managers were considered when reviewing their resultant effective style mix and when making relative return comparisons. Publicly available fund fact sheets were reviewed in order to more explicitly define manager styles and identify specific manager benchmarks where available. Where no specific benchmark was defined or able to be sourced, the SWIX was chosen as a reasonable market benchmark.

#### **Significant SWIX exposure, insignificant VALUE 60 exposure**

Cadiz Equity ALSI, Huysamer Equity, OMIGSA Value Equity Investments Portfolio and Orthogonal Equity Value are found to all exhibit average SWIX exposures over their respective investment period in excess of 80%.

It is found that both Cadiz Equity ALSI and Orthogonal Equity Value have the majority of their return variation explained by the movement in the SWIX over their respective investment periods (R-square values in excess of 95%), with zero exposures to either the VALUE 60 or MOMENTUM 60 indices. Although Cadiz Equity ALSI is a low tracking error product with the ALSI as its point of departure, it and Orthogonal Equity Value are misclassified with zero Value exposure and have slightly underperformed the SWIX over their respective investment periods.

Huysamer Equity and OMIGSA Value Equity Investments Portfolio both have average exposures to the SWIX in excess of 90% over their respective investment periods, with minimal VALUE 60 exposures contrary to their style classifications. In addition, both funds underperformed both their passive style shadow portfolios, the FTSE/JSE All Share Index and the SWIX over their respective investment periods.

*Note: T-statistics for average manager selection return in parenthesis.*

**Significant MOMENTUM 60 exposure, insignificant VALUE 60 exposure**

Cannon All Equity SWIX, Cannon ALSI Institutional Composite, Element Equity, Element Specialist Equity, Investec Value Equity and STANLIB Value all exhibit average MOMENTUM 60 exposures over their respective investment periods in excess of 10%.

Cannon All Equity SWIX despite its significant VALUE 60 exposure (41%) and its advertised ‘overarching Value philosophy’<sup>5</sup> exhibits a sizable MOMENTUM 60 exposure (16%) over its investment period. Although the fund has outperformed its market benchmark, the FTSE/JSE All Share Index, it has underperformed its passive style based shadow portfolio by -2.1% per annum (-0.12). The underperformance appears a direct result of the deviation from the manager’s purported style.

Cannon ALSI Institutional Composite is found to have a relatively higher exposure to the MOMENTUM 60 (27%) rather than the VALUE 60 (22%) over the investment period, contrary to its style classification. Despite outperforming its target benchmark, the FTSE/JSE All Share Index, it has underperformed both the SWIX and its constructed passive style based shadow portfolio by -3.0% per annum (-0.16). Although mandate constraints may limit the comparability of the fund’s performance relative to its passive style shadow, its underperformance relative to the SWIX suggests that passive alternatives may provide a more efficient return profile.

Element Equity and Element Specialist Equity both exhibit an average exposure of 10% to the MOMENTUM 60 index over their respective investment periods. While both funds outperform the SWIX, they fail to outperform their respective style shadow portfolios. The aforementioned provides further evidence that where funds are found to deviate from their promised style, the underperformance of passive style based indices results.

Investec Value Equity is found to have an average exposure of 16% to the MOMENTUM 60 index over the investment period despite its mandate indicating that it buys ‘Value’<sup>6</sup> shares, more specifically those equities trading at a discount to their fair value. Despite the fund outperforming the SWIX, it significantly underperforms its passive style shadow by approximately -1.9% per annum (-0.06) over the investment period.

STANLIB Value is a fund whose philosophy centres on the acquisition of stocks perceived by the manager to be priced at a discount to their intrinsic value.<sup>7</sup> Despite this Value focused strategy, the fund exhibits a significant average exposure to the MOMENTUM 60 index of

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<sup>5</sup> Cannon All Equity SWIX Fund Factsheet – March 2011.

<sup>6</sup> Investec Value Equity Fund Factsheet – May 2011.

<sup>7</sup> STANLIB Value Fund Factsheet – April 2011.

approximately 22%. Although the fund has outperformed the SWIX over the investment period, its constructed passive style shadow indicates that a passive strategy based on the fund's historic exposures would improve investor returns by approximately 1.9% per annum.

### **5.2.3 PERFORMANCE ASSESSMENT**

In order to more effectively assess the performance of the 25 managers classified as having a 'Value' orientation, customized passive style benchmarks as in Sharpe (1988, 1992) were created. Managers' performance is assessed over their respective investment periods relative to their specific style benchmark and the SWIX in order to determine the prevalence of any selection return. Such an analysis contributes additional evidence to the ongoing debate as to whether or not the benefits from active management outweigh the additional costs investors need to incur over and above those payable for a more passive strategy.

#### **Top performers**

The top funds in order of their average annualized selection return per month relative to their passive specific style shadow portfolios were ABSA Asset Management Value: 4.9% (0.48), Aylett Equity: 4.0% (0.36), Allan Gray Specialist Domestic Equity: 3.2% (0.22), Coronation Houseview Equity: 2.0% (0.19) and Foord Specialist Domestic Equity: 0.7% (0.10).

ABSA Asset Management Value and Aylett Equity have relatively small fund sizes, approximately R1.4bn and R200m as at 31 March 2011. Given the smaller absolute values of the aforementioned funds, both would be able to invest in both small to mid-capitalization stocks. As both the VALUE 60 and MOMENTUM 60 indices include only large capitalization stocks, the return profiles of funds with significant small capitalization exposure may not be fully explained by the generic specification of the style factor model.

To test whether or not both funds outperformed their passive style shadow portfolios, the returns on two additional passive indices the FTSE/JSE Mid Cap and FTSE/JSE Small Cap were included in the specified factor model. The results of the analysis indicate that outperformance in both funds persists despite the inclusion of these additional indices, indicating significant manager stock selection ability.

Notably, ABSA Asset Management Value and Aylett Equity significantly outperform their passive style and market related benchmarks in Sep08 and Oct08 when international equity markets felt the impact of the financial crisis. It is uncertain whether or not superior stock selection or a more defensive asset allocation in the wake of the crisis generated this outperformance. Despite the uncertainty surrounding the funds' asset allocation, the outperformance of their passive benchmarks appears economically significant although only moderately statistically significant.

Allan Gray Specialist Domestic Equity and Coronation Houseview Equity are considerably larger funds, with combined current market values of in excess of R6bn. Allan Gray Specialist Domestic Equity exhibits consistent outperformance of both its passive style shadow and the SWIX over the investment period. Coronation Houseview Equity tracks its passive style shadow closely pre-2008, but thereafter it outperforms both benchmarks following the economic recovery post the financial crisis.

Factor models were re-run including the FTSE/JSE Mid Cap and FTSE/JSE Small Cap passive indices as proxies for exposure to smaller listed equities. The results found outperformance to persist in both funds despite their inclusion. The Allan Gray Specialist Domestic Equity Fund's outperformance has been consistent since 2005 and improved further over the financial crisis in 2008, indicating consistent manager selection ability. Coronation Houseview demonstrated similar consistent outperformance albeit over a shorter time period, beginning in late 2007.

#### **Bottom performers**

The funds that failed to outperform their specific style and market based benchmarks were Cannon ALSI Institutional Composite, Argon Domestic Value Equity, Orthogonal Equity Value and Element Specialist Equity.

Argon Domestic Value Equity was found to underperform its passive style shadow by approximately 2.7% on an annualized basis. An analysis of the fund's return profile suggests a large exposure to the SWIX and an ill-timed Value exposure relative to that of the VALUE 60 index post 2008, following the economic recovery.

All of the remaining funds aside from Argon Domestic Value Equity have previously been identified as not complying with their defined style classifications refer to section 10.2.2 above.

These results support the thesis that where a fund deviates from its promised style, the return consequences from such a style misspecification can be considerable.

## 5.3 GROWTH MANAGERS

### 5.3.1 INTRODUCTION

A total of 11 of the 60 funds included in the sample were classified as following a 'Growth' based investment philosophy. On average, the aforementioned funds appeared to exhibit a less significant than expected Growth orientation with a 9% effective exposure to the MOMENTUM 60 index over the investment period and a 13% effective exposure as at 31 October 2010.

### 5.3.2 EVIDENCE OF STYLE MISSPECIFICATION

An analysis of the output suggests that the effective style of 7 of the 11 managers classified as 'Growth' show significant exposures to either the SWIX or the VALUE 60 index over the investment period. In order for the analysis to remain relevant, the specific mandate restrictions of managers were considered when reviewing their effective style mix and when making relative return comparisons.

#### **Significant SWIX exposure, less significant MOMENTUM 60 exposure**

Investec Growth Equity, Metropolitan Managed Equity Portfolio, OMIGSA Electus Multi Cap Portfolio are found to all exhibit average SWIX exposures in excess of 80% over their respective investment periods. None of the aforementioned funds ascribe their management strategy to tracking the SWIX. For example Investec Value *'...invests in companies that are expected to deliver above average earnings growth in the future.'*<sup>8</sup>

OMIGSA Electus Multi Cap Portfolio's mandate indicates a blended style focus, *'...invests in both Growth and Value shares across the large, mid and small cap sectors.'*<sup>9</sup> The fund is found to have an average exposure to the SWIX over the investment period of approximately 91% and 9% to the VALUE 60 index with no exposure to the MOMENTUM 60 index. Despite the fund's unique mandate, its return profile can be sufficiently replicated by purchasing a passive SWIX focused product.

#### **Significant VALUE 60 exposure, less significant MOMENTUM 60 exposure**

All but Investec Growth Equity and OMIGSA Electus Multi Cap Portfolio exhibit average exposures to the VALUE 60 index in excess of 10% over their respective investment periods. Those funds with the most significant average exposure to the VALUE 60 index over their respective investment periods include OMIGSA Investment Research Small Cap Growth (43%), Afena Capital Equity SWIX (35%), STANLIB Growth Equity (25%) and Afena Capital Equity CAPI (19%).

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<sup>8</sup> Investec Value Fund Factsheet – May 2011.

<sup>9</sup> Electus Multi Cap Portfolio Fund Factsheet.

OMIGSA Investment Research Small Cap Growth focuses on selecting smaller companies which show above average prospects for capital gains over the medium to long term. Although the aforementioned mandate appears sufficiently broad to include both Value and Momentum exposure, the active performance of the fund has significantly underperformed its passive style shadow by approximately 3.2% over the investment period.

STANLIB Growth Equity aims to ‘...*achieve medium to long term capital growth by investing in companies that are growing faster than the market.*’<sup>10</sup> STANLIB Growth Equity’s average exposure of 25% to the VALUE 60 index and 46% to the SWIX over the investment period has seen it underperform its passive style shadow by 6.7% on an annual basis.

### 5.3.3 PERFORMANCE ASSESSMENT

In order to more effectively assess the performance of the 11 managers classified as having a ‘Growth’ orientation, customized passive style benchmarks as in Sharpe (1988, 1992) were created. Managers’ performance is assessed over their respective investment periods relative to their specific style benchmark and the SWIX in order to determine the prevalence of any selection return. Such an analysis contributes additional evidence to the ongoing debate as to whether or not the benefits from active management outweigh the additional costs investors need to incur over and above a passive strategy.

#### **Top performers**

No ‘Growth’ funds in the current sample were able to outperform their passive style shadow portfolios over their specific investment periods.

#### **Bottom performers**

The funds that failed to outperform their specific style and market based benchmarks were RMBAM Equity Capped Index and STANLIB Growth Equity. RMBAM Equity Capped Index underperformed its passive style shadow by 2.9% with STANLIB Growth Equity underperforming its style shadow by 6.7%.

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<sup>10</sup> STANLIB Growth Equity Fund Factsheet – February 2011.

## **5.4 CORE MANAGERS**

### **5.4.1 INTRODUCTION**

A total of 24 of the 60 funds included in the sample were classified as following a 'Core' based investment philosophy. On average, the majority of the aforementioned funds appeared to exhibit no significant orientation to either the VALUE 60 index or the MOMENTUM 60 index over the investment period. However, upon closer inspection, several special cases are observed.

### **5.4.2 EVIDENCE OF STYLE MISSPECIFICATION**

An analysis of the output suggests that the effective style of 9 of the 24 managers classified as 'Core' show significant exposures to either the MOMENTUM 60 or the VALUE 60 index over the investment period. In order for the analysis to remain relevant, the specific mandate restrictions of managers were considered when reviewing effective style mix and when making relative return comparisons.

#### **Significant VALUE 60 index exposure**

Advantage Focused Equity FOF, Coronation Aggressive Equity, Coronation Core Equity, Investment Solutions Pure Equity Local, Kagiso Equity Alpha Fund UT, Kagiso Managed Equity and STANLIB Financial and Industrial Fund all exhibited an average exposure of greater than 10% over the investment period.

As both funds by Advantage and Investment Solutions Pure Equity Local are Fund of Funds, their respective style exposure is a function of their exposure to the underlying managers. Despite being able to select managers, they have limited control as to the enforcement of chosen manager mandates. Results suggest that such fund of fund structures underperform their passive style shadows by approximately 1% per annum.

Coronation Aggressive Equity and Coronation Core Equity have both outperformed their respective passive style shadow portfolios by approximately 2.1% (0.16) and 2.7% (0.27) per annum. Exposures of 20% and 11% respectively for Coronation Aggressive Equity and Coronation Core Equity to the VALUE 60 index are contrary to their respective mandates, which indicate no bias to either 'Value' or 'Growth' stocks however, did in fact contribute to the achieved outperformance.

Similarly, Kagiso Equity Alpha Fund UT and Kagiso Managed Equity, despite being classified as having no style preference, both are found to exhibit significant exposure (approximately 20%) to the VALUE 60 index over their respective investment periods. Fund investment objectives include the investment in South African listed equities on a consistent basis using in-house bottom up analysis. Given the significant exposure to the VALUE 60 index for both



funds, it is evident that the applied 'bottom up' procedures prescribe to the Value investment paradigm. Despite this style misclassification, both funds are found to outperform both the SWIX and their respective passive style shadows by 0.4% and 2.3% per annum respectively, indicating that such misspecification has had a favourable impact on performance.

STANLIB Financial and Industrial Fund shows a strong exposure to the VALUE 60 index of approximately 39% over the investment period. The Fund's mandate constrains its available investable universe to only those stocks in the Financial and Industrial sectors, and therefore the application of the VALUE 60 and MOMENTUM 60 indices, which have no such sector constraints, may unfairly benchmark fund performance. However, as the resultant R-Square of the regression of the Fund's returns versus its shadow portfolio constructed from the SWIX, VALUE 60 and MOMENTUM 60 indices is approximately 85%, it may be inferred that the Fund's investment universe is closely aligned to those stocks included in the constructed style based indices. The Fund is found to underperform its constructed passive style shadow portfolio by approximately 1.3% per annum; however there is little evidence to suggest this is due to any style misspecification because of its more generalist mandate.

#### **Significant MOMENTUM 60 index exposure**

Kagiso Equity Alpha Fund UT, STANLIB Core Equity, STANLIB Financial and Industrial Fund and STANLIB Shariah Equity Fund all exhibited an average exposure of greater than 10% over the investment period.

STANLIB Core Equity's objective is to generate superior long term returns through fundamental research. Furthermore, the fund is 'style agnostic, a combination of Value and Growth styles and is benchmark conscious...' <sup>11</sup> Given the aforementioned mandate, its average exposure to the MOMENTUM 60 index of 11% may be considered reasonable. Despite its acceptable style classification given its investment objective, it has underperformed both the SWIX and its passive style shadow by approximately 1.3% over the investment period.

The STANLIB Shariah Fund is found to exhibit a significant average exposure of 37% to the MOMENTUM 60 index. The fund's investable universe is restricted in that it has to invest in listed shares that conform to the religious and cultural beliefs of Muslim investors. Given this restriction, the use of the tradable style indices not subject to such restrictions in benchmarking fund performance would unfairly prejudice the fund. Therefore, in order to better assess fund performance, the constituents of both style indices would need to be sufficiently screened in order to adhere to the fund's mandate constraints. Such an analysis is beyond the scope of this study.

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<sup>11</sup> STANLIB Core Equity Fund Factsheet – January 2011.

### 5.4.3 PERFORMANCE ASSESSMENT

In order to more effectively assess the performance of the 24 managers classified as having a 'Core' orientation, customized passive style benchmarks as in Sharpe (1988, 1992) were created. Managers' performance is assessed over their respective investment periods relative to their specific style benchmark and the SWIX in order to determine the prevalence of any selection return. Such an analysis contributes additional evidence to the ongoing debate as to whether or not the benefits from active management outweigh the additional costs investors need to incur over and above a passive strategy.

#### **Top performers**

The top funds in order of their average annualized selection return per month relative to their passive specific style shadow portfolios were ABSA Asset Management Core: 3.6% (0.31), Coronation Core Equity: 2.7% (0.27), Kagiso Managed Equity: 2.3% (0.18) and Coronation Aggressive Equity: 2.1% (0.16).

ABSA Asset Management Core has delivered exceptional return performance relative to its passive style shadow over the investment period. The fund has approximately R1.4bn of assets under management, a fund size that would allow it to access small to mid cap exposure not explicitly modelled by the VALUE 60 and MOMENTUM 60 indices.

To test whether or not the funds outperformed their passive style shadow portfolios, the returns on two additional passive indices, the FTSE/JSE Mid Cap and FTSE/JSE Small Cap, were included in the specified factor model. The results of the analysis indicate that outperformance in both funds persist despite the inclusion of these additional indices, indicating significant manager stock selection ability.

#### **Bottom performers**

The funds that underperformed their specific style and market based benchmarks were the STANLIB Shariah Fund, Orthogonal Equity Core and Mergence Africa All Equity (SWIX).

Orthogonal Equity Core exhibited a 100% exposure to the SWIX over the investment period, indicating that there is a cheaper passive alternative available to an investor. In addition, the fund was found to underperform its passive style shadow by approximately 4.8%. Although the fund significantly underperformed market based benchmarks, without more detailed knowledge of its available investment universe and target benchmark this underperformance may be unfairly prejudicial to the fund under consideration.

Mergence Africa All Equity (SWIX) underperformed its passive style shadow by approximately 3.6% per annum. The fund's return profile could be replicated by the SWIX, once again providing support for an investor to seek out a passive alternative before committing to pay

active management fees. The strategy of the fund is highly quantitative, the effectiveness of which appears muted over the investment period examined.

The results provide further support to the thesis that where managers/funds deviate from their style niche, underperformance of a more affordable passive style shadow portfolio is common. Investors should be aware of the motives for managers to misrepresent their style bias in order to improve funding prospects as in Brown and Goetzman (1997).

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## 6 CONCLUSION AND AREAS FOR FURTHER STUDY

### 6.1 CONCLUSION

The aim of constructing a style based variant of the asset factor model first used in Sharpe (1988, 1992) was to allow the analyst, investor and manager the ability to better understand the decision making process prevailing in an equity focused fund. 'It can provide a consistent view of investment decisions that investors make to economize on information flows and exploit comparative advantages.' – *Sharpe (1988, 1992)*

The results of our investigation concur with prior work by Sharpe (1988, 1992) and diBartolomeo and Witkowski (1997). Of the total sample of 60 funds, approximately 45% of those analysed have their return profiles better explained through exposures to investment philosophies that are contrary to that which is indicated by their fund fact sheets or responses to their respective manager due diligence questionnaires. Of the three categories, namely Value, Growth and Core; the 'Value' category has the most reliable style classification with approximately 25% of funds (5 funds) having an insignificant average exposure to the VALUE 60 index over their respective investment periods. The 'Growth' category showed the poorest style classification over the investment period with approximately 60% of Growth funds mis-specified. Notably, approximately 80% of the classified Growth funds are found to exhibit a significant average exposure to the VALUE 60 index over their specific investment periods. Approximately 33% of those funds classified as 'Core' were found to be mis-specified having significant exposures to either the VALUE 60 index or MOMENTUM index over their investment periods.

Of the 45% of funds in the sample whose investment decisions and resultant returns were found to differ from their purported style, approximately 80% of these mis-specified funds underperformed their passive style shadow portfolio constructed based on their exposures to the VALUE 60 and MOMENTUM 60 indices. These results suggest that managers who deviate from their advertised style by selecting stocks within their funds that are contrary to their conventional investment philosophy end up underperforming their effective passive style equivalent. The analysis provides compelling evidence to suggest investors into equity focused funds need to continually monitor manager investment decisions to ensure their realized returns are not being prejudiced by inefficient active style drift on the part of the fund manager.

As put forth in diBartolomeo and Witkowski (1997) major reasons for this widespread style misspecification include (1) the lack of any specific guidelines available to monitor fund style mix; and (2) adverse economic incentives, whereby managers focus on achieving superior rankings within certain fund categories in order attract relatively more investor capital. The VALUE 60 and MOMENTUM 60 indices used in this study aim to address the former by providing tradable passive style indices that would better enable analysts, investment consultants

and investors to track the performance of a specific style, and therefore better benchmark the performance of their selected fund manager's products.

Some additional practical considerations that may see the funds examined drift from their expected style include (1) Minimization of transaction costs and (2) Mandate restrictions. In order to prevent transaction costs becoming excessive and adversely impacting fund performance, some managers' may seek to rebalance their funds as infrequently as possible in order to reduce incurring an inefficient amount of transaction costs. By reducing trading activity, managers may unwillingly hold shares that were initially aligned to their investment philosophy but over time have been reclassified to fall into a different style, so effectively causing the style drift. Secondly, where a mandate of a fund is restrictive to the extent that a manager is likely to pass up attractive investment opportunities for complying with a promised investment philosophy, it is likely the manager will drift from the fund's style in order to maximise performance.

An improvement in the benchmarking of fund manager performance, coupled with an improvement in investors' understanding of any given fund's style exposure, will assist in allowing investors to better align manager incentives. Improved benchmarking and better investor education will assist in bringing about more efficient asset allocation on the part of the manager, and in so doing, aid in maximizing realized returns.

## **6.2 AREAS OF FURTHER STUDY**

The sample in this study comprises a total of 60 South African Institutional funds. This sample, albeit the largest of its kind tested in the South African context, is not comprehensive. It is hoped that the completion of this study will create awareness amongst all concerned industry participants and facilitate the expansion of this sample to become even more indicative of the South African institutional and unit trust fund landscape.

As indicated by Buetow, Johnson and Runkle (2000) the lack of widely accepted definition of style is an inhibiting factor in the completion of consistent, stable returns based style analyses. Further research into the development of consensus definitions of various manager styles would assist in the completion of more reliable returns based style analyses.

Furthermore, in order to assess/confirm the results of the current study a portfolio or characteristics based style analysis could be completed. Such an analysis would be contingent on the sourcing of sufficient portfolio holdings data for each fund on a monthly basis. The requirement of such detailed holdings information may be onerous, however work by Rekenhaller, Gambera and Karlson (2006) suggest that a portfolio based approach may provide more accurate results relative to its return based counterpart.

The results of this study have implications for any investor's choice amongst active and passive managers. The returns of both the style indices and the manager return data are gross returns i.e.

they are the returns realized prior to fees charged by either the active or passive manager. Further research into the specific fee structures for both active and passive alternatives included in the study would assist in improving any investor's ability to complete an accurate performance comparison. In so doing, an investor would be better able to select the optimal fund/index that suits their risk and return requirement allowing for the maximization of realized returns.

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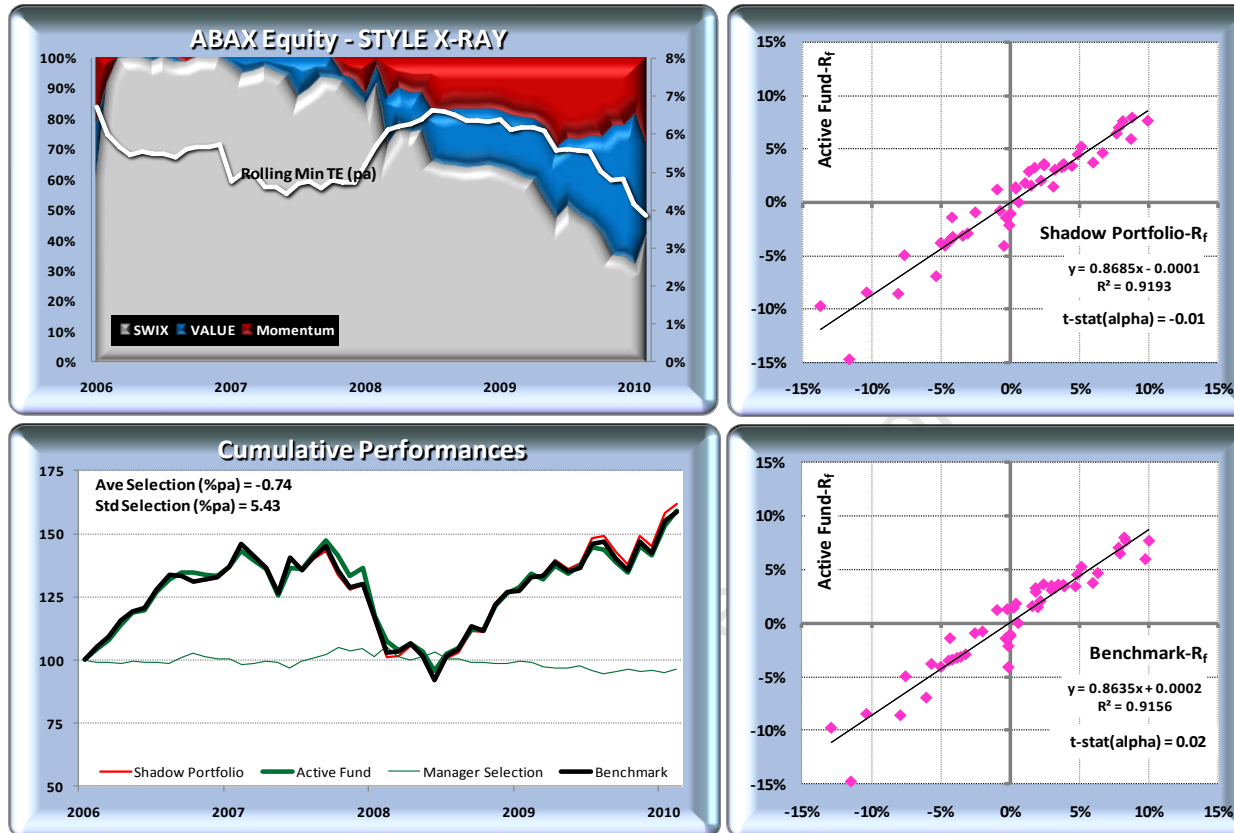
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## 8 APPENDIX A

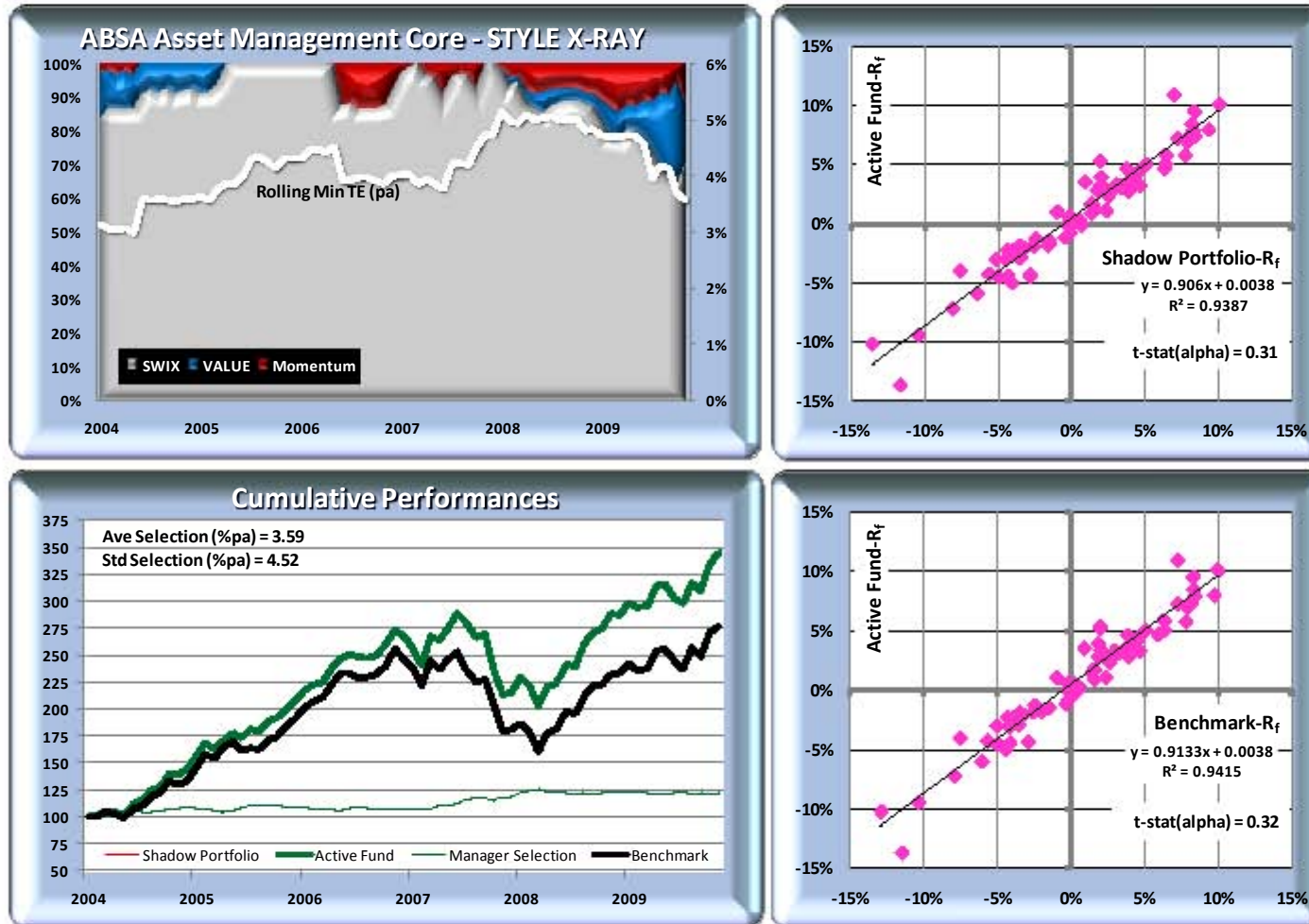
### APPENDIX A.1

#### ABAX Equity



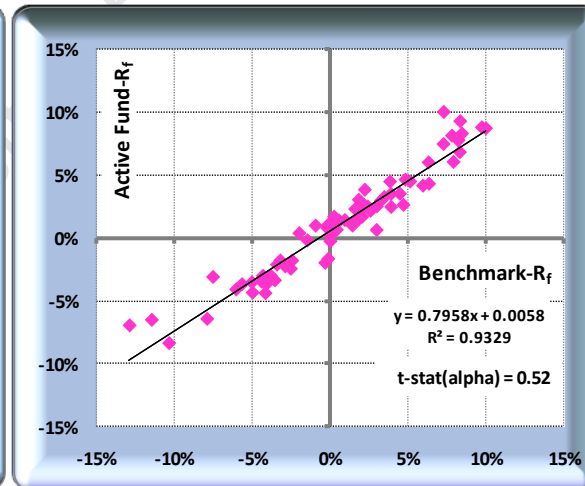
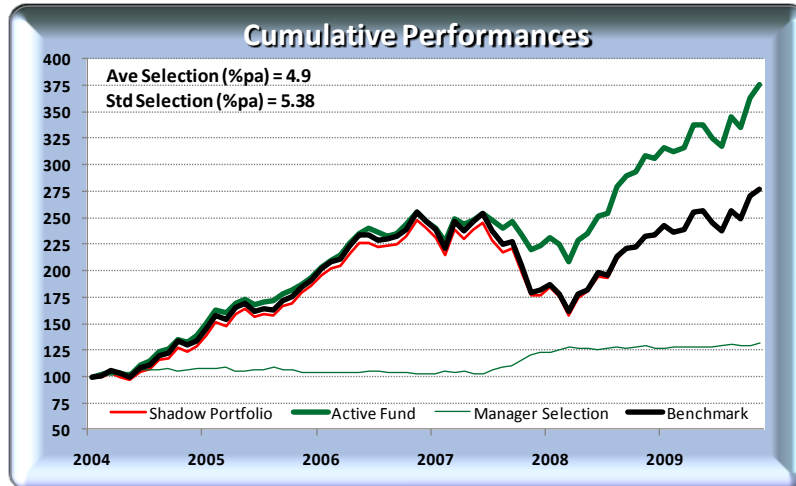
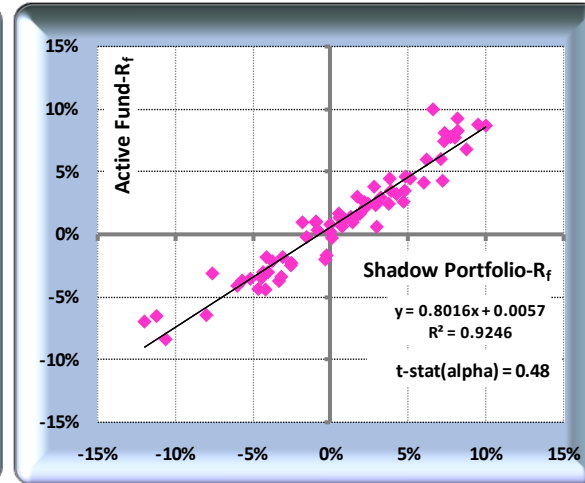
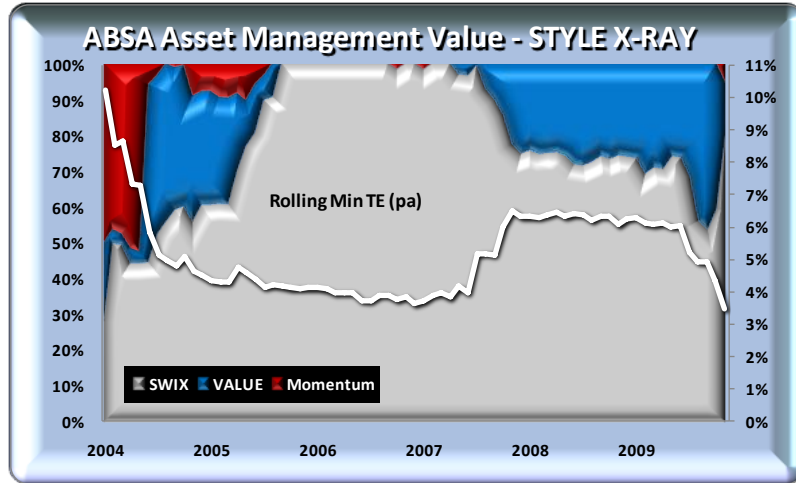
## APPENDIX A.2

### ABSA Asset Management Core



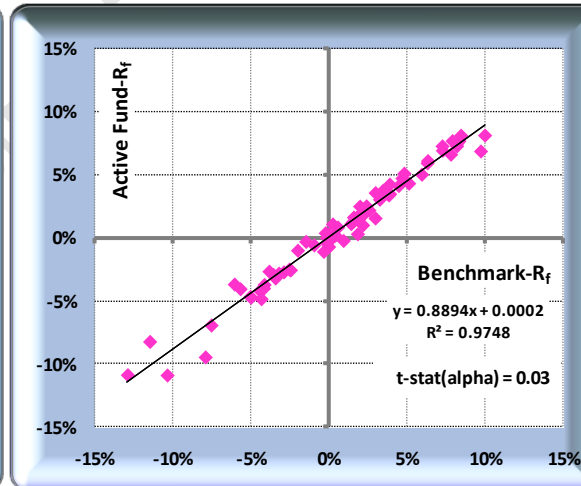
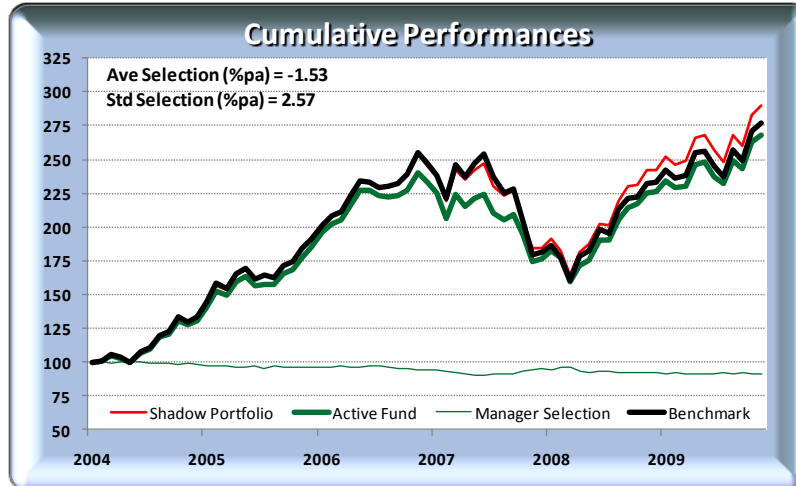
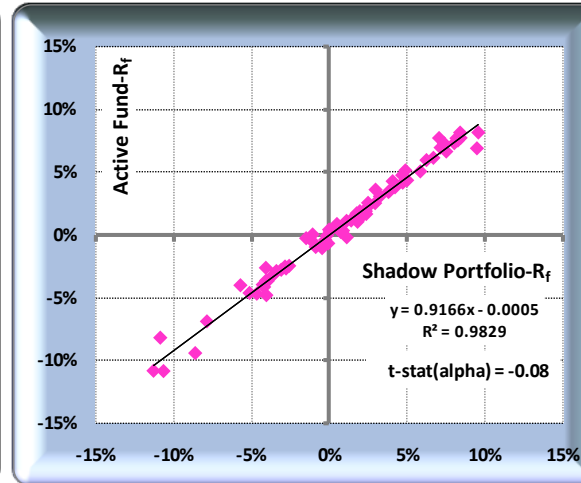
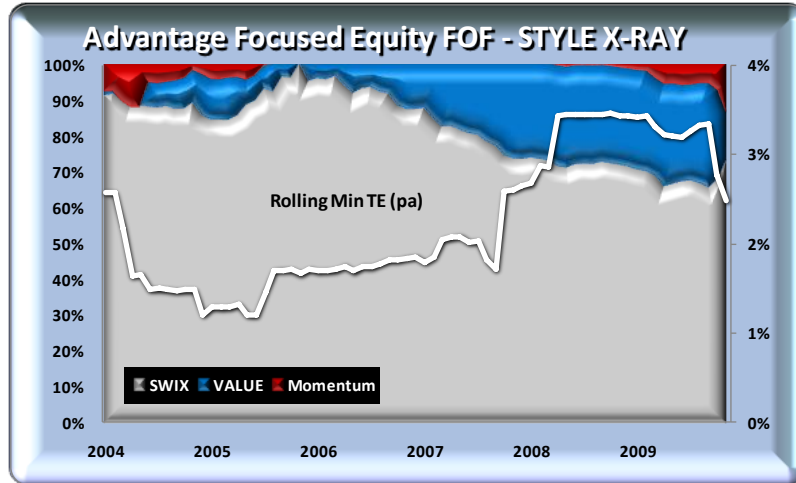
## APPENDIX A.3

### ABSA Asset Management Value



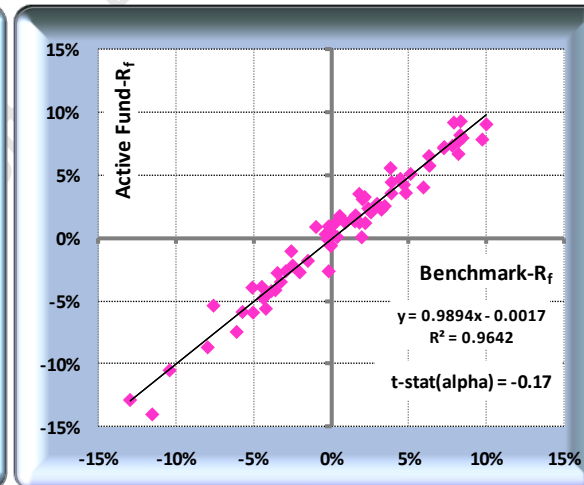
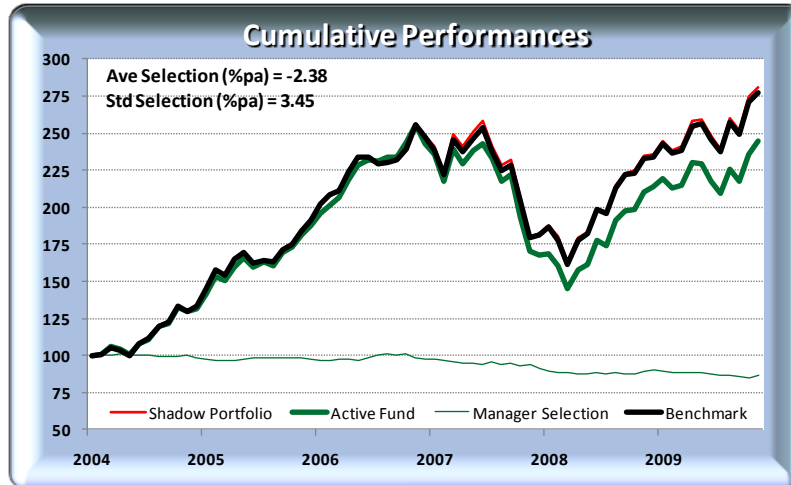
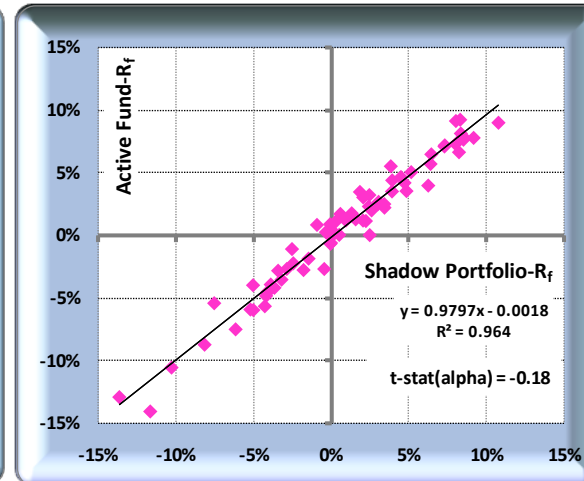
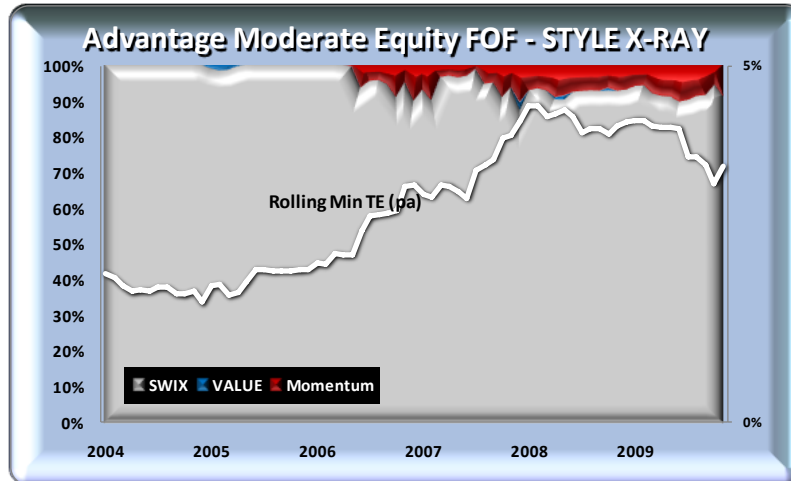
## APPENDIX A.4

### Advantage Focused Equity Core



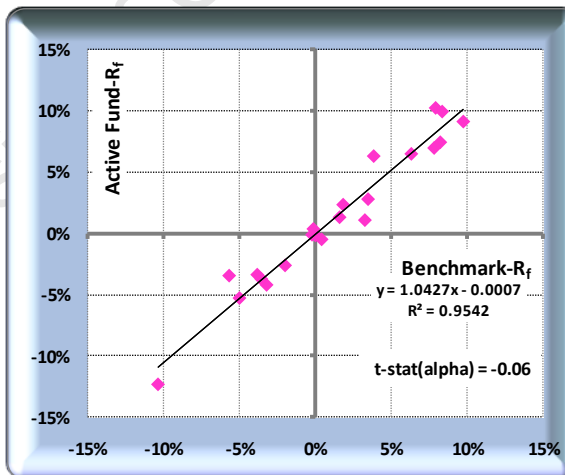
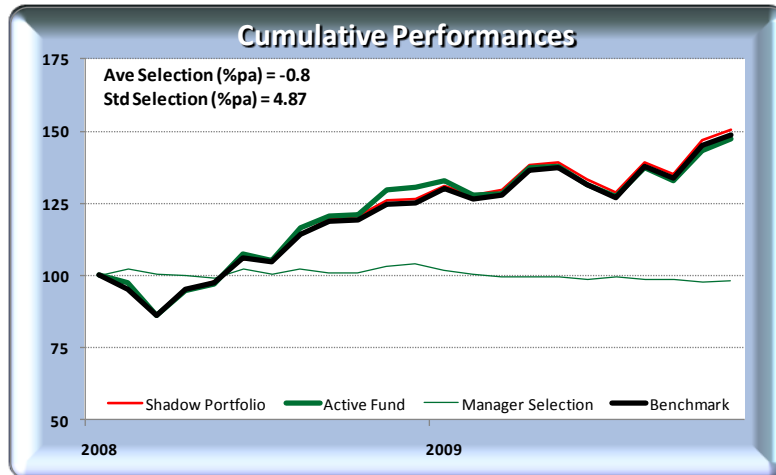
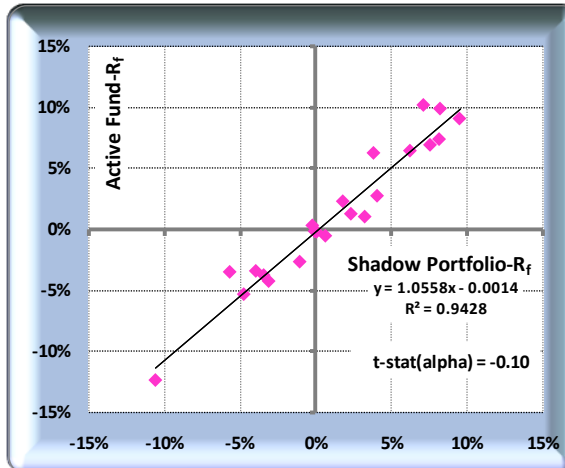
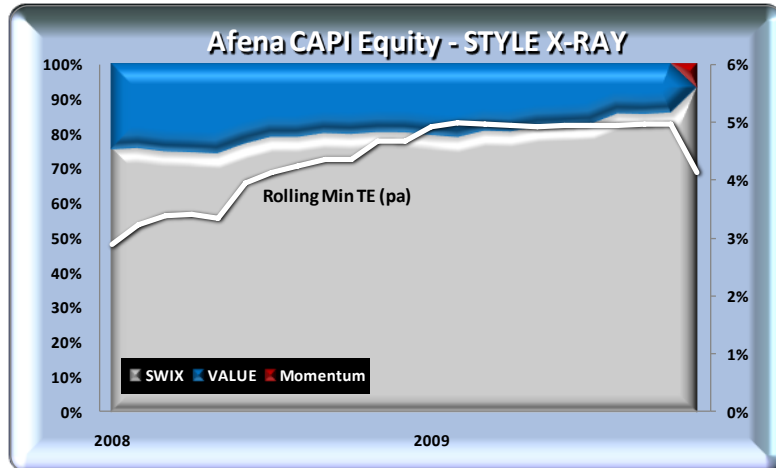
## APPENDIX A.5

### Advantage Moderate Equity Core



## APPENDIX A.6

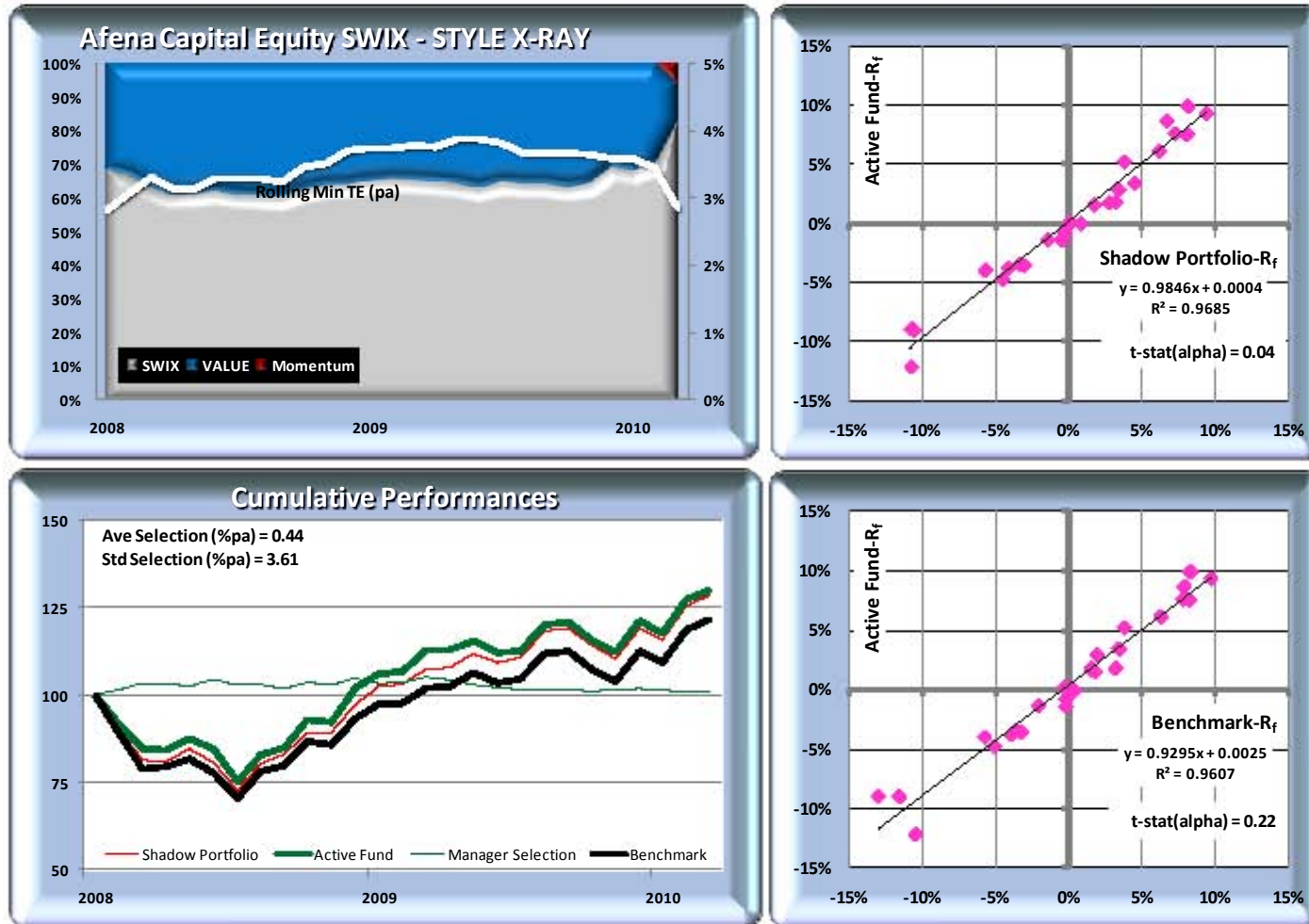
### Afena CAPI Equity





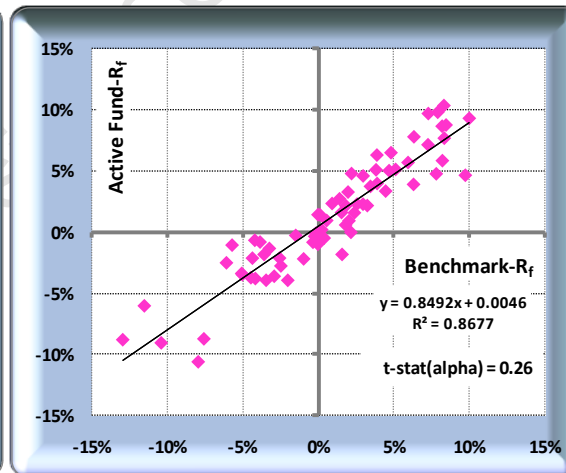
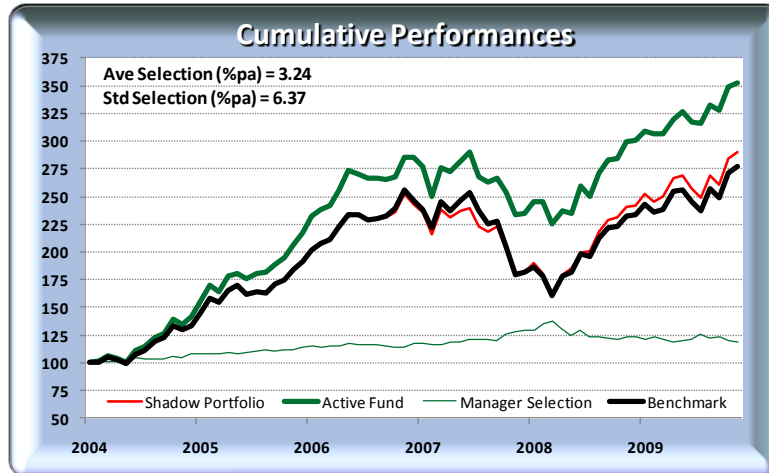
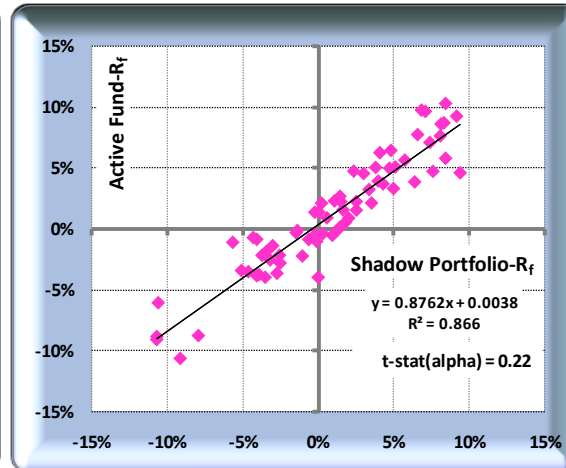
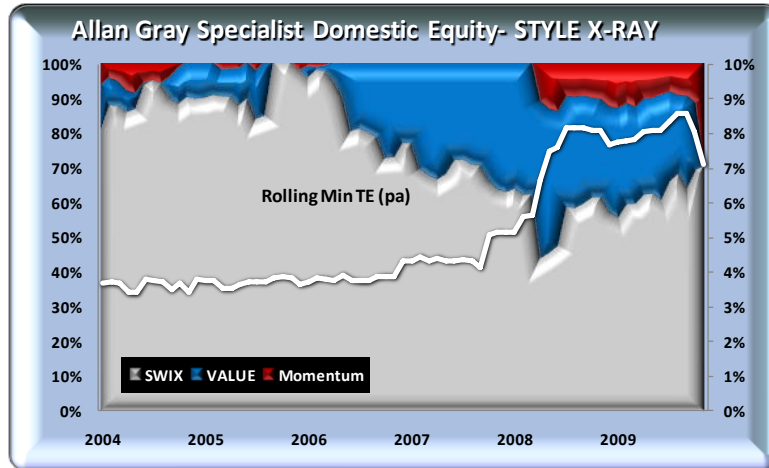
## APPENDIX A.7

### Afena Capital Equity SWIX



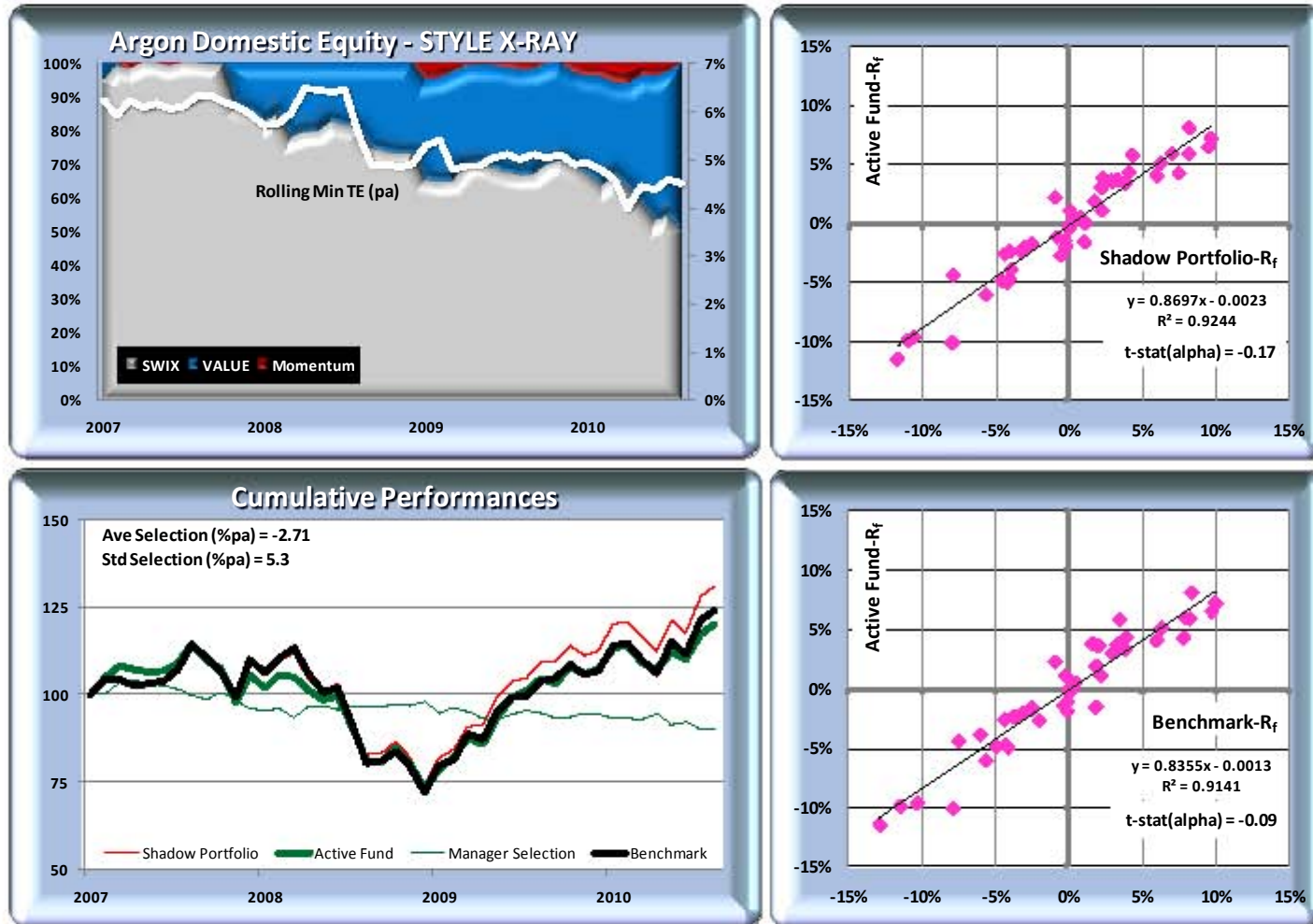
## APPENDIX A.8

### Allan Gray Specialist Domestic Equity



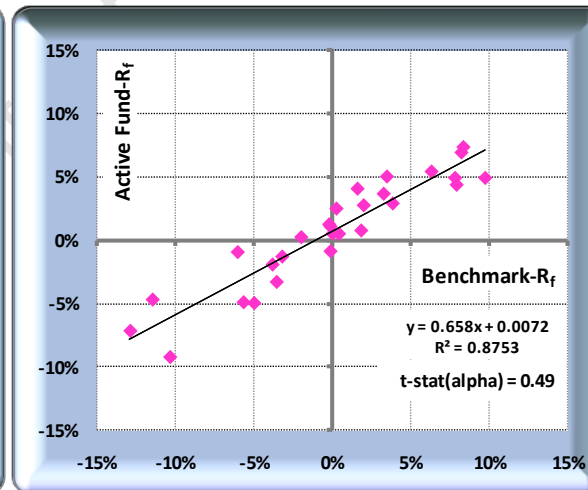
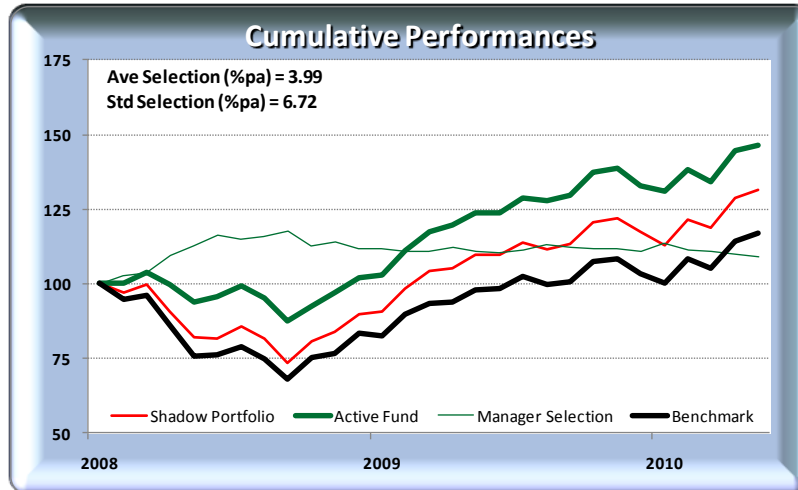
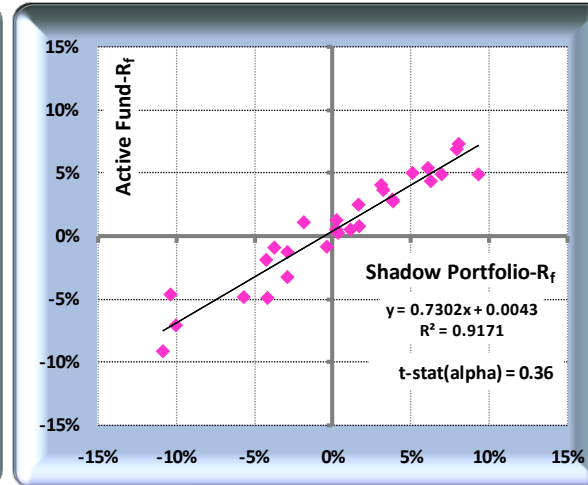
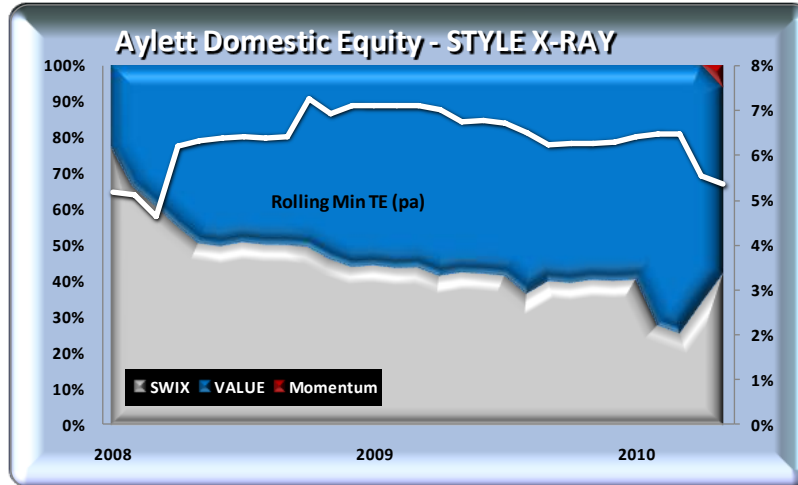
## APPENDIX A.9

### Argon Domestic Equity



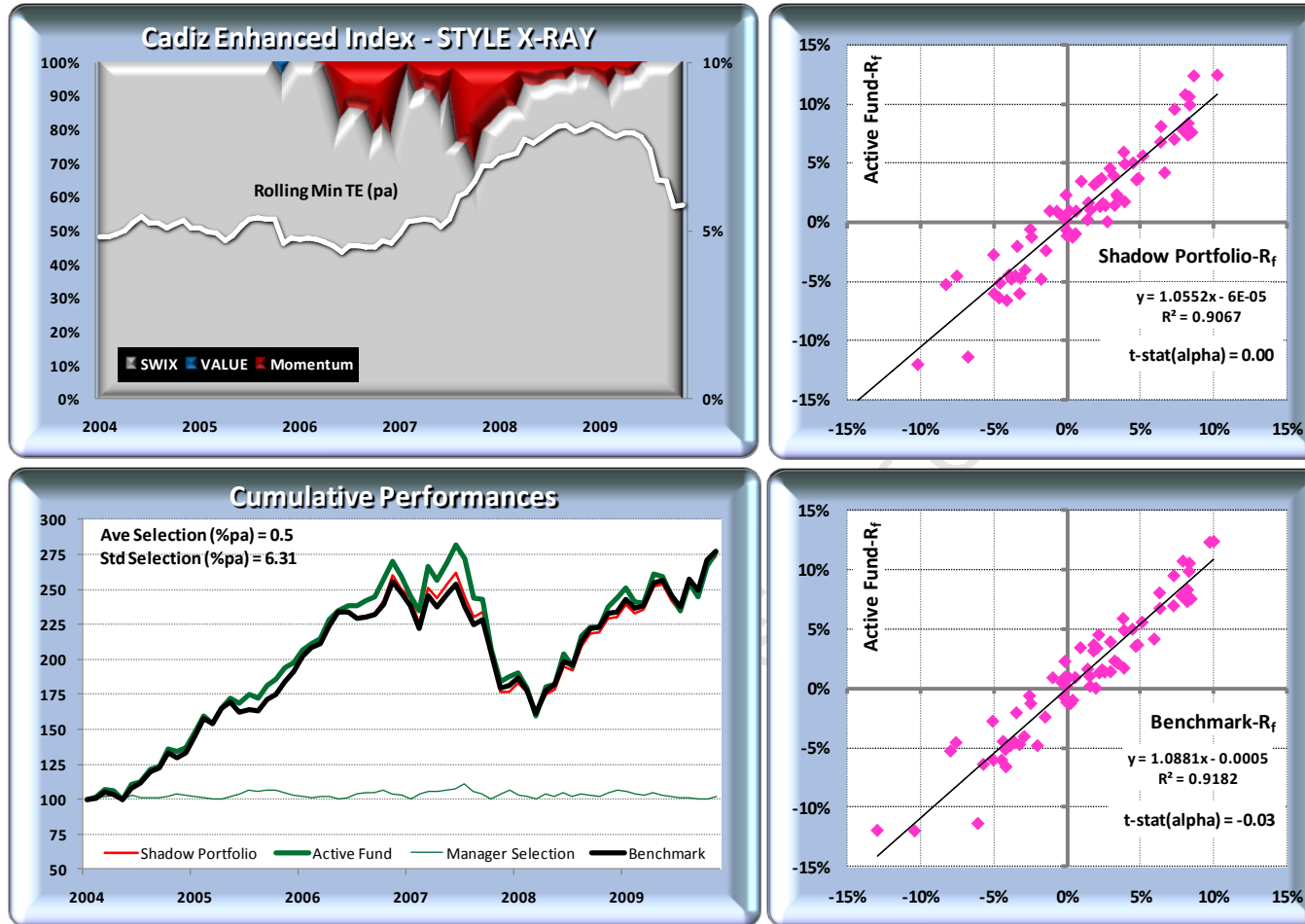
## APPENDIX A.10

### Aylett Domestic Equity



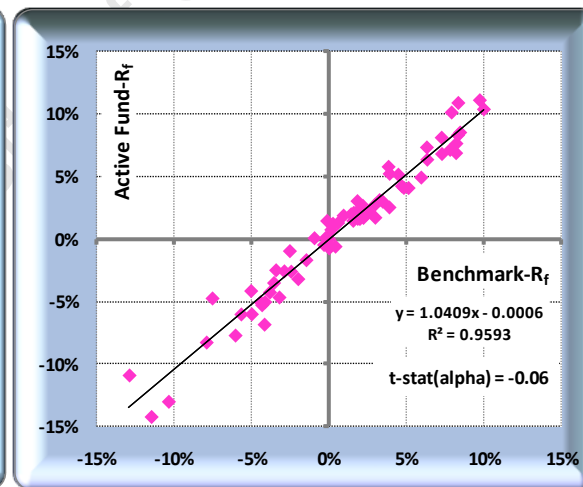
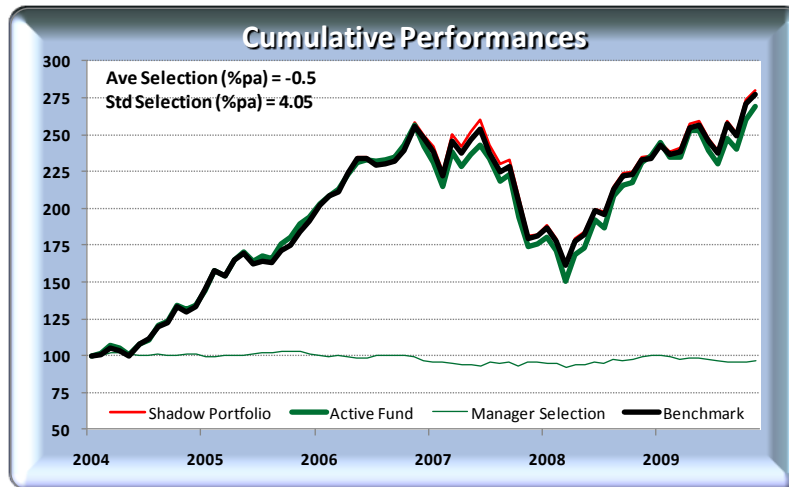
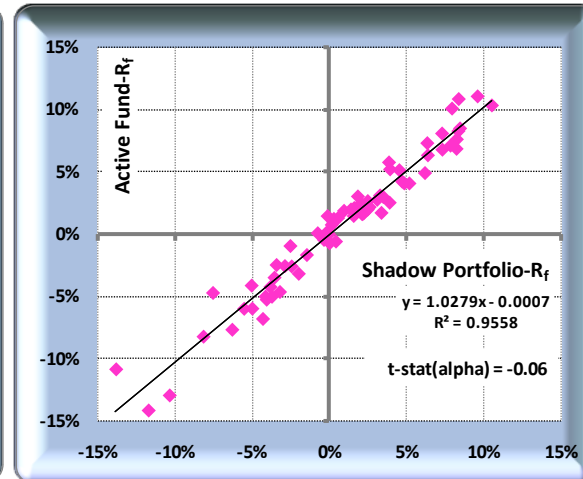
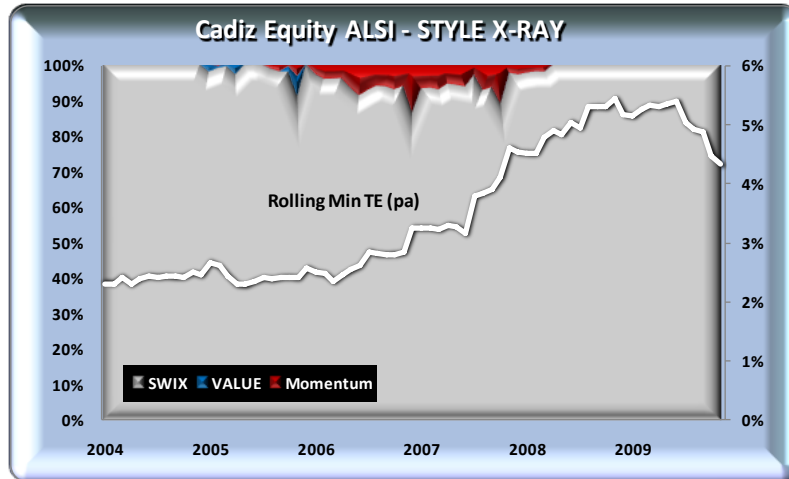
## APPENDIX A.11

### Cadiz Enhanced Index



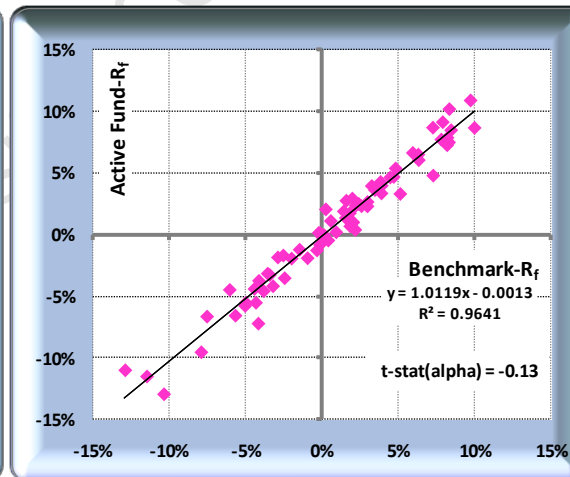
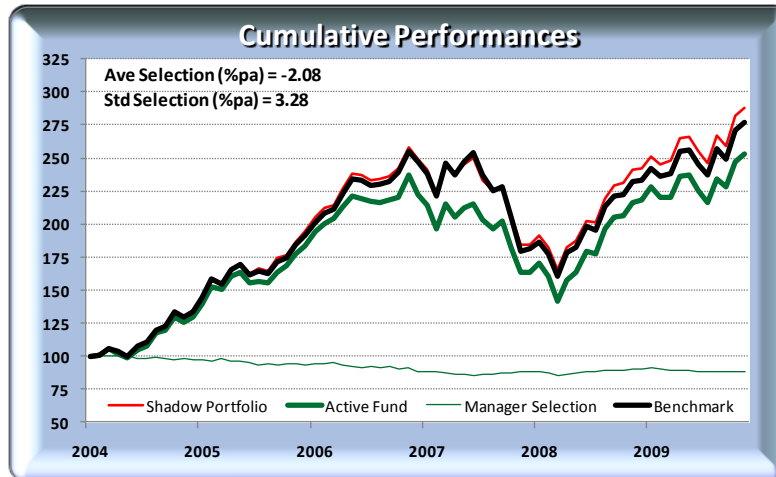
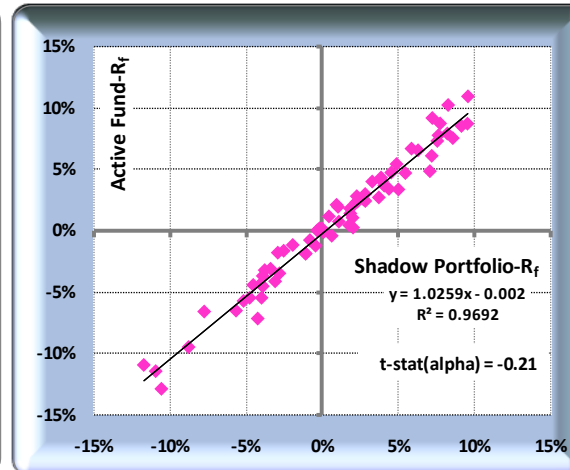
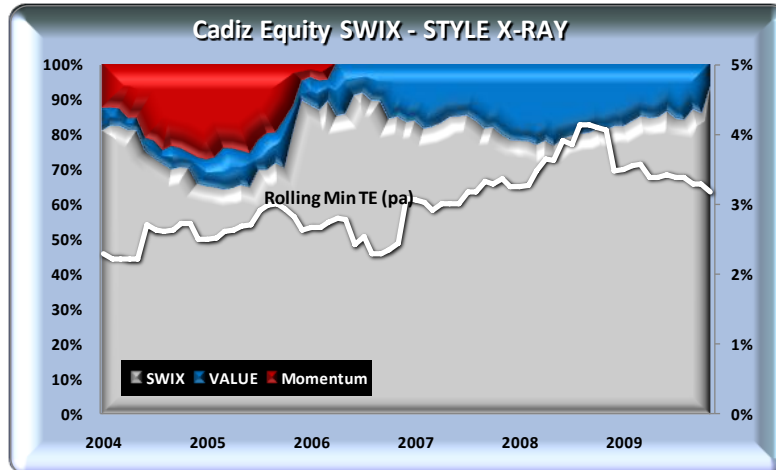
## APPENDIX A.12

### Cadiz Equity ALSI



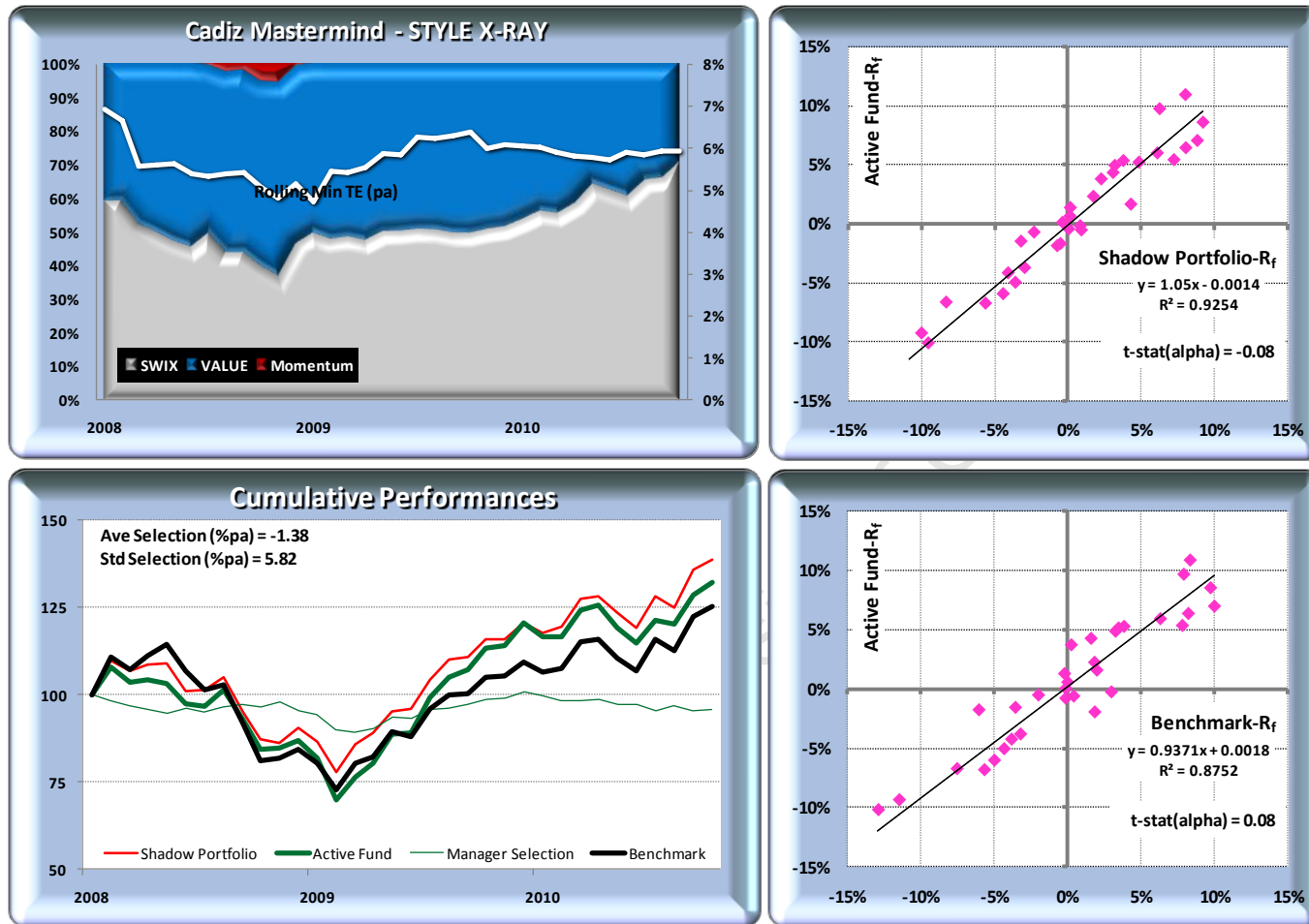
## APPENDIX A.13

### Cadiz Equity SWIX



## APPENDIX A.14

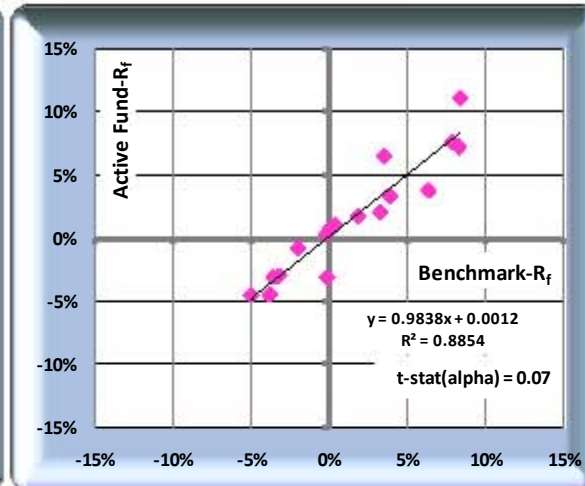
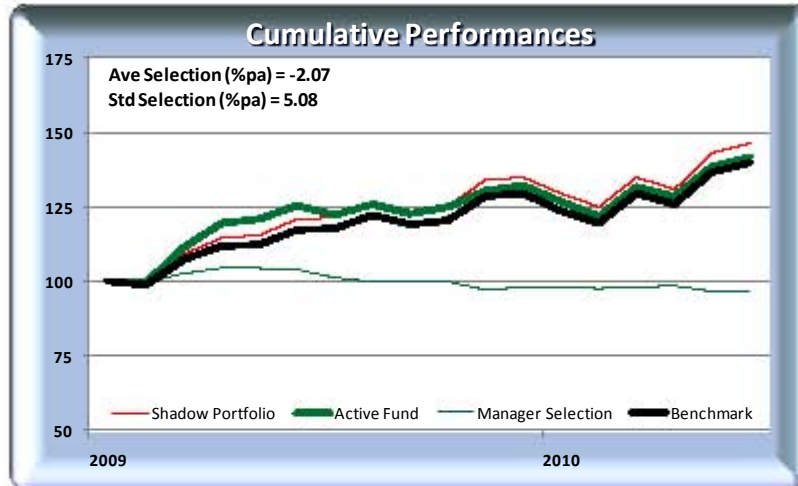
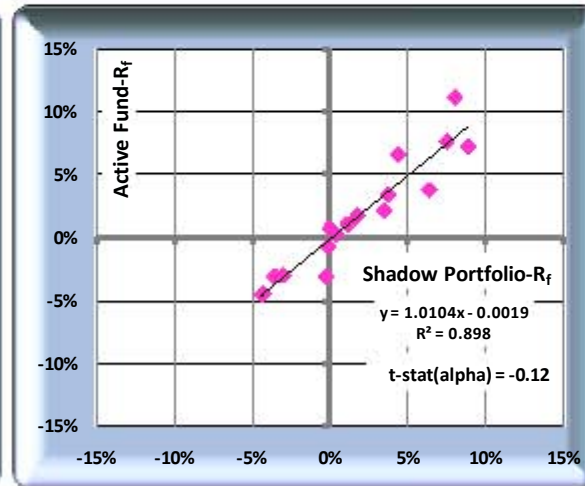
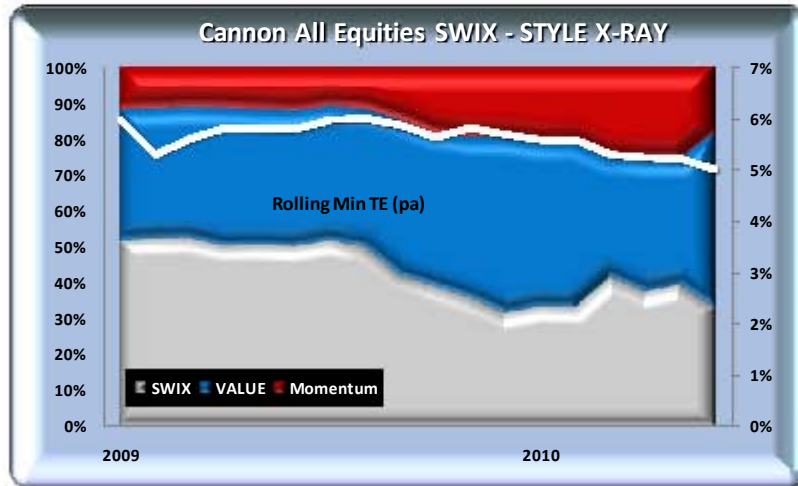
### Cadiz Mastermind





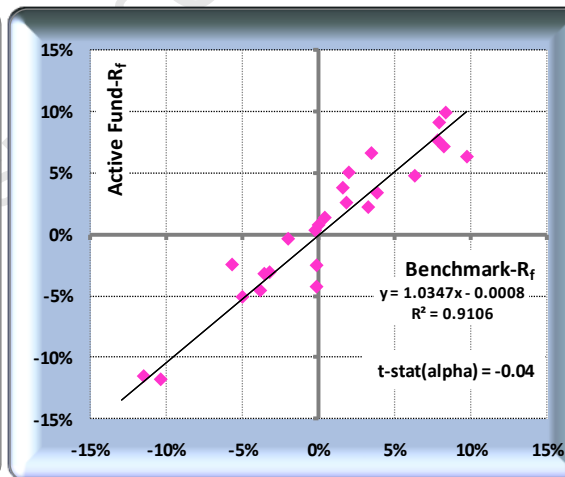
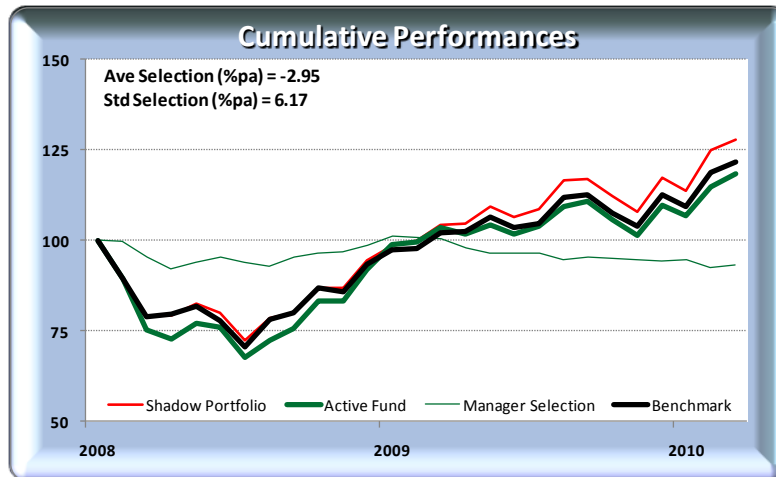
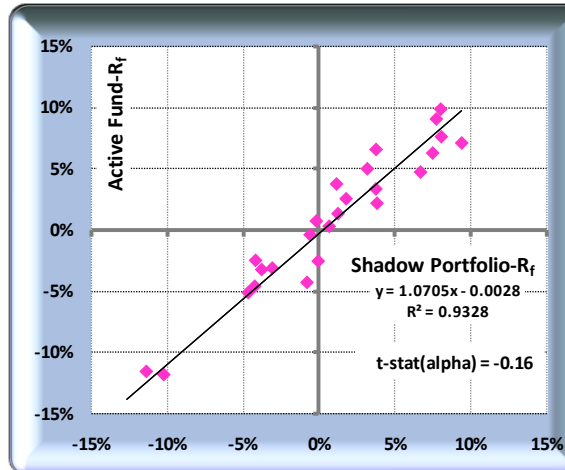
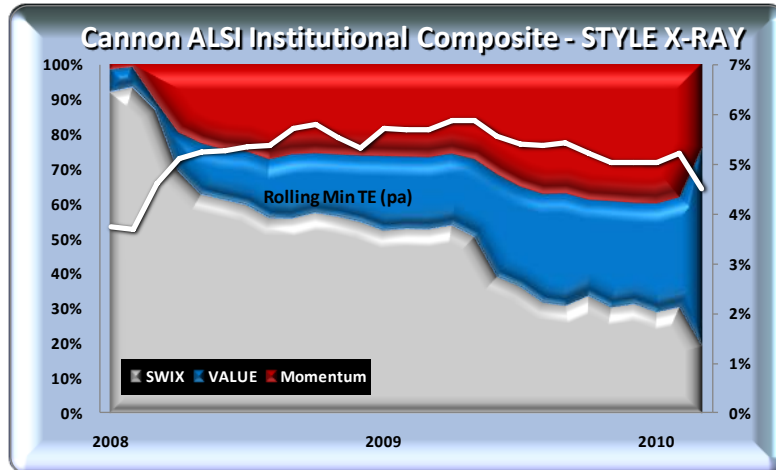
## APPENDIX A.15

### Cannon All Equity SWIX



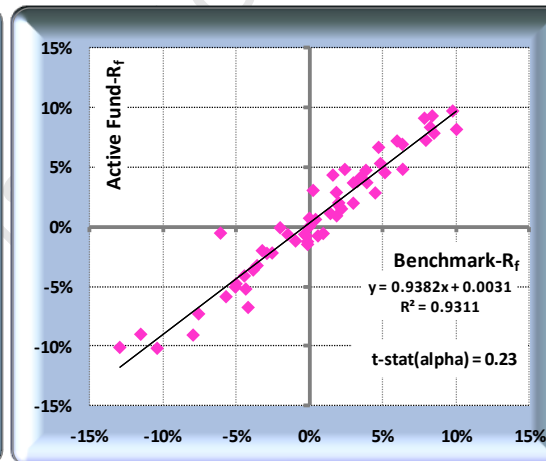
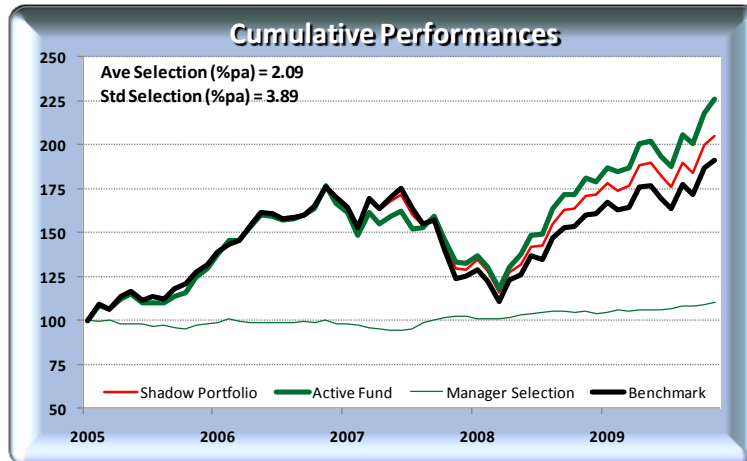
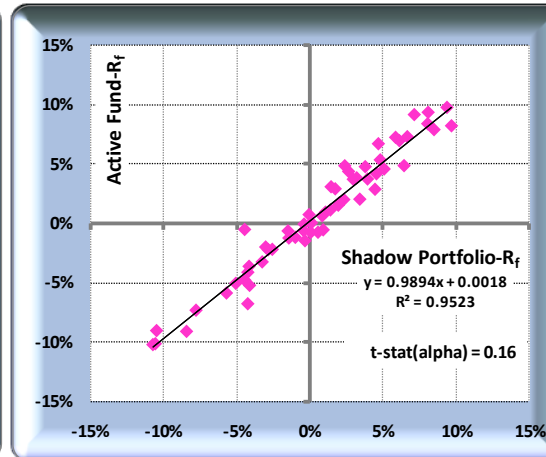
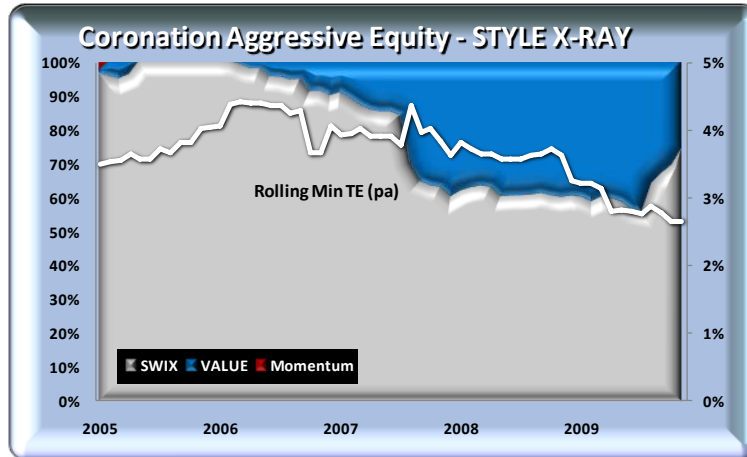
## APPENDIX A.16

### Canon ALSI Institutional Composite



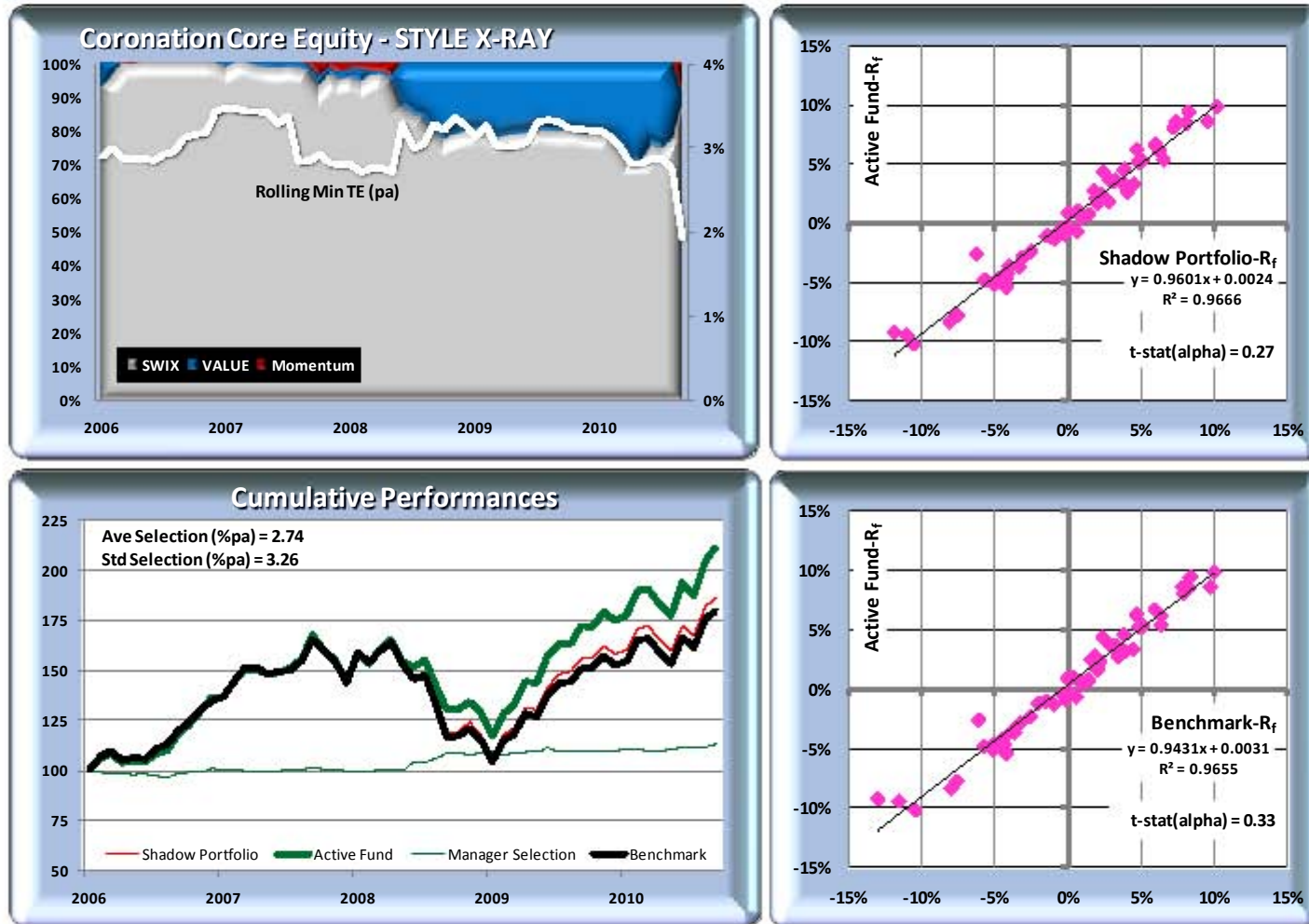
## APPENDIX A.17

### Coronation Aggressive Equity



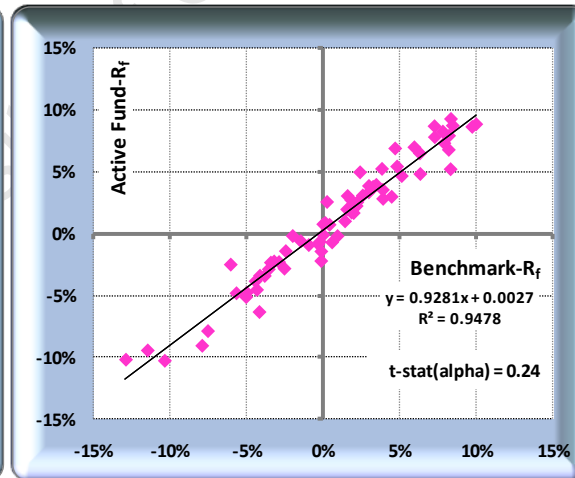
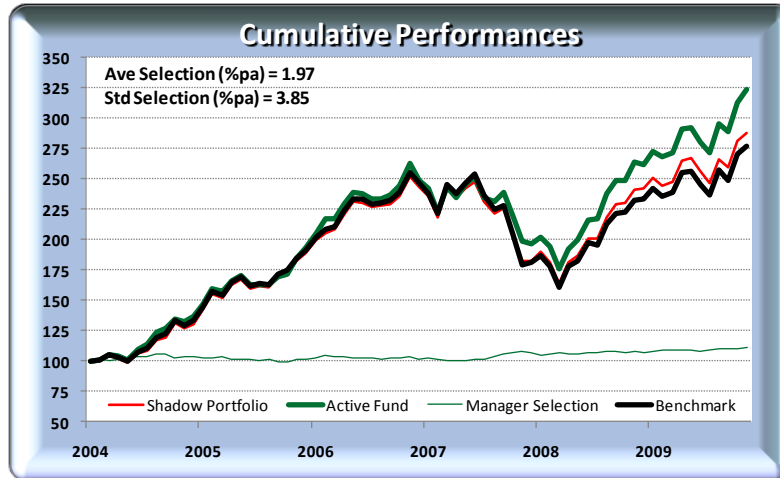
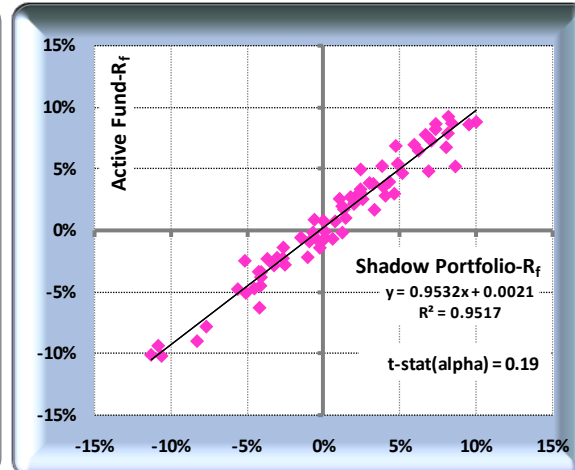
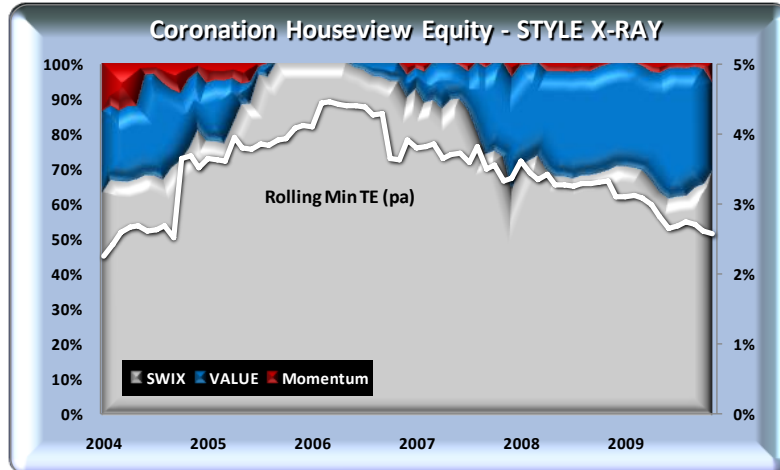
## APPENDIX A.18

### Coronation Core Equity



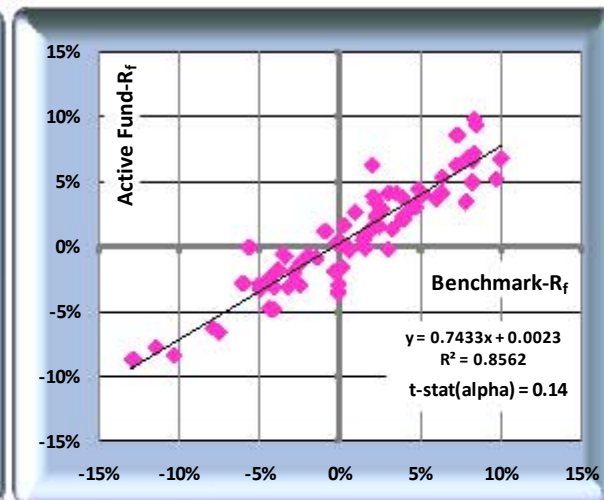
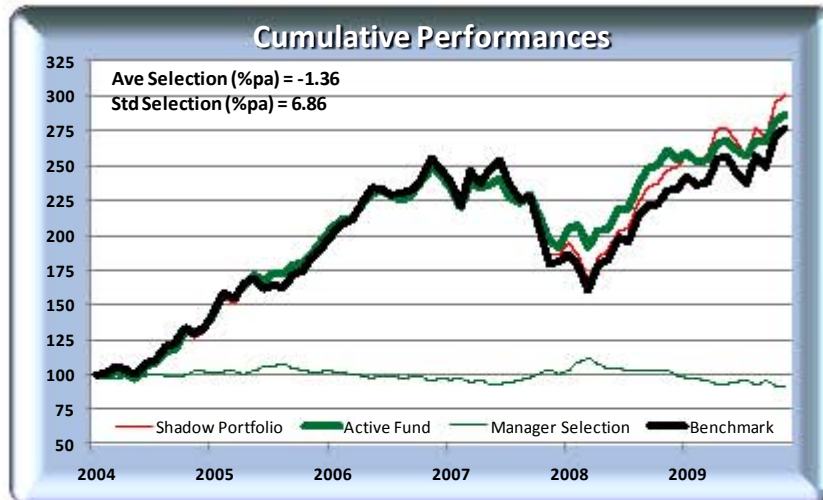
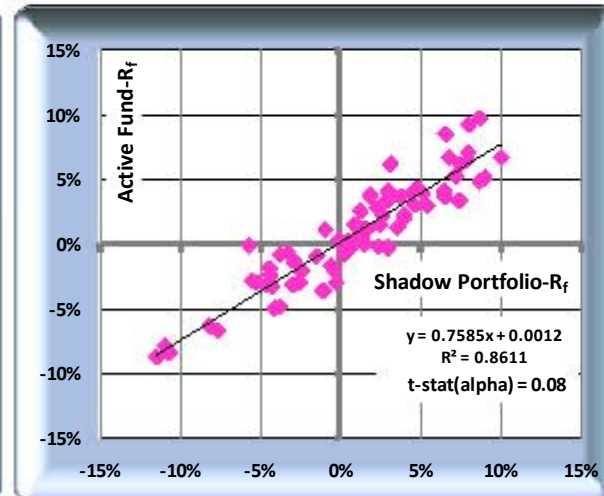
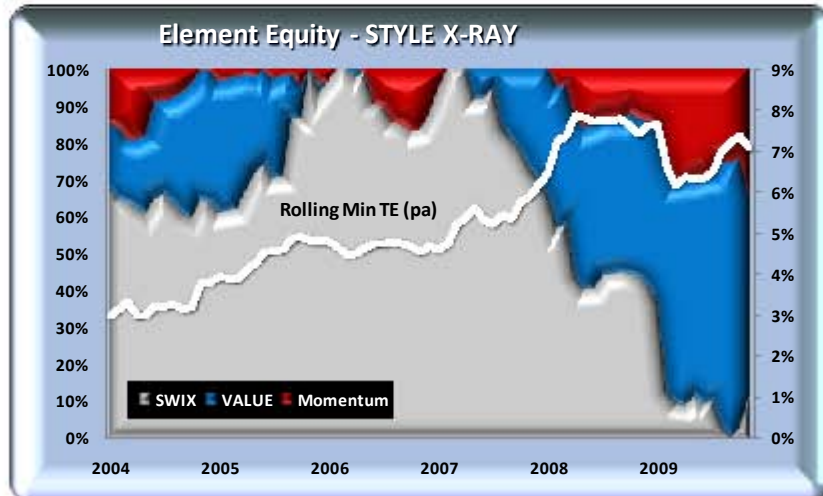
## APPENDIX A.19

### Coronation Houseview Equity



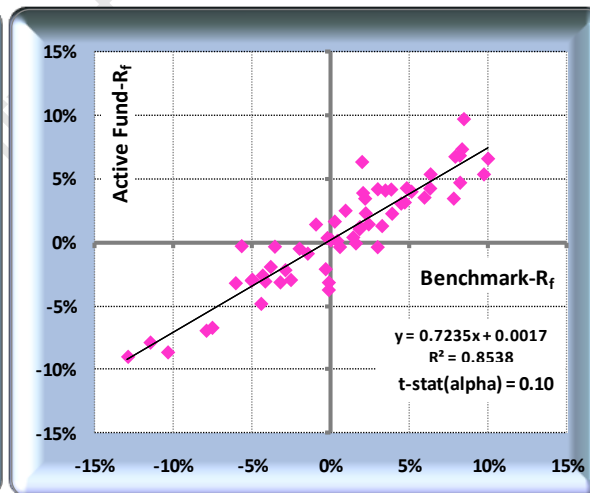
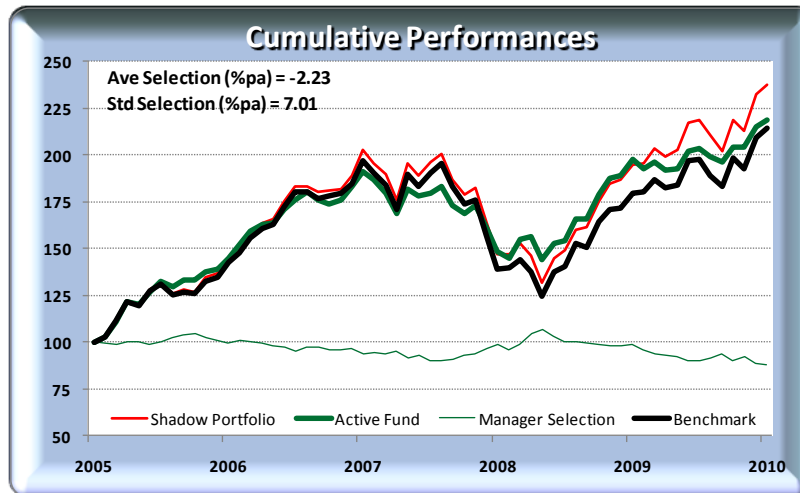
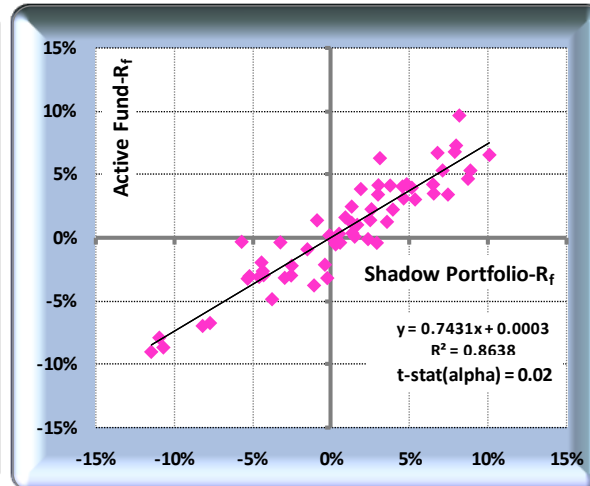
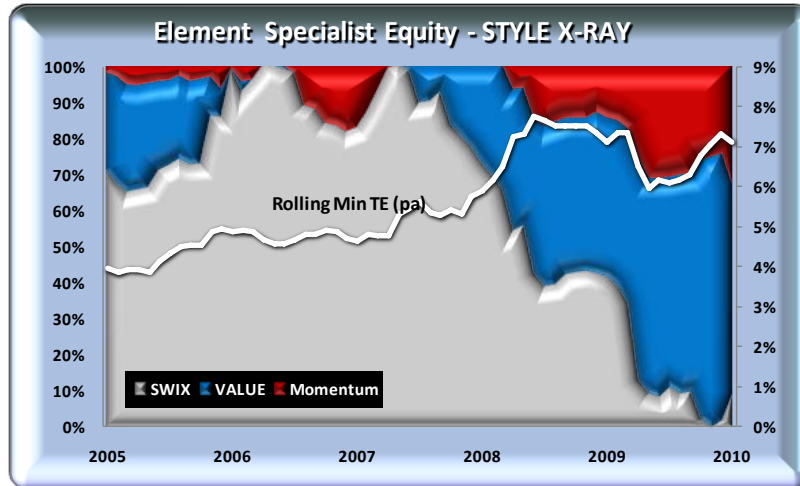
## APPENDIX A.20

### Element Equity



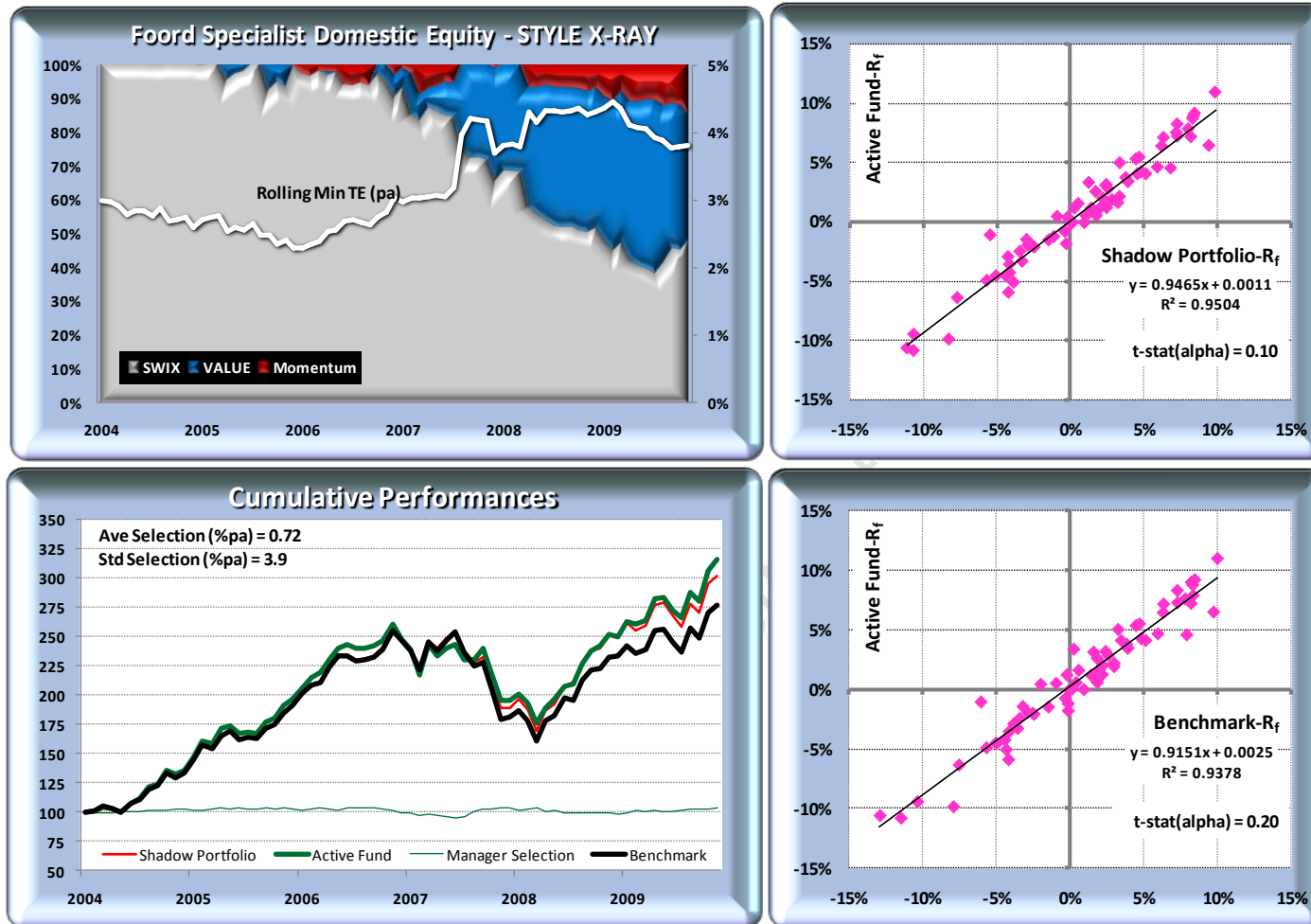
## APPENDIX A.21

### Element Specialist Equity



## APPENDIX A.22

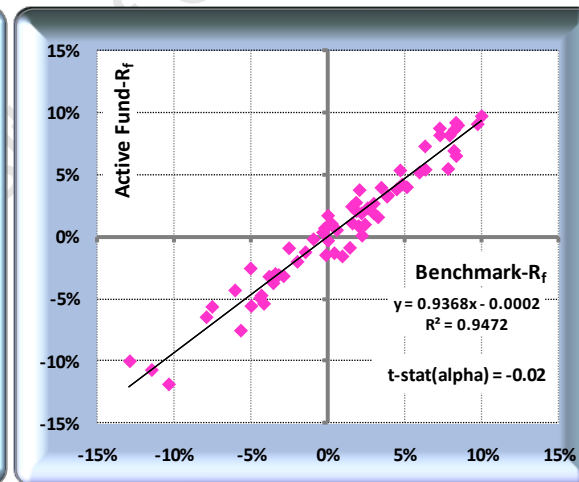
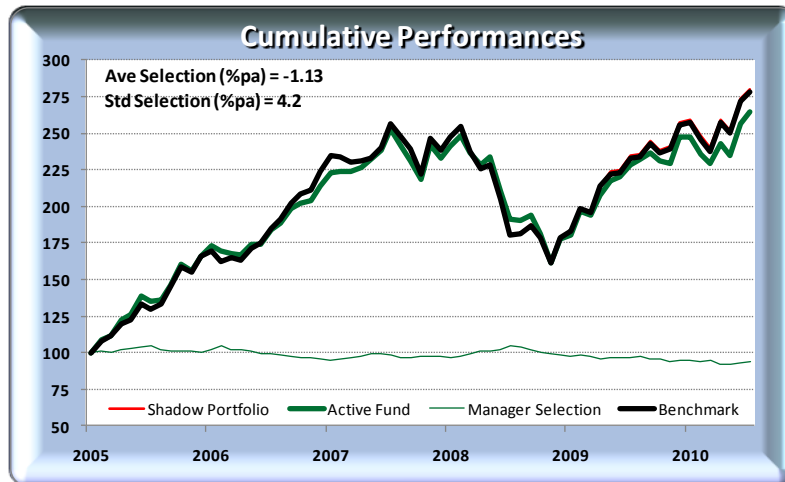
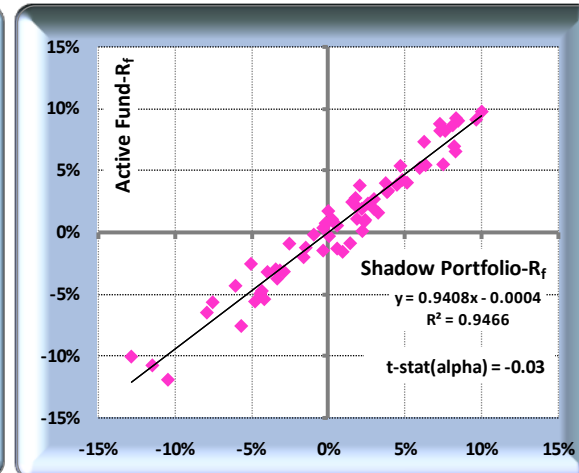
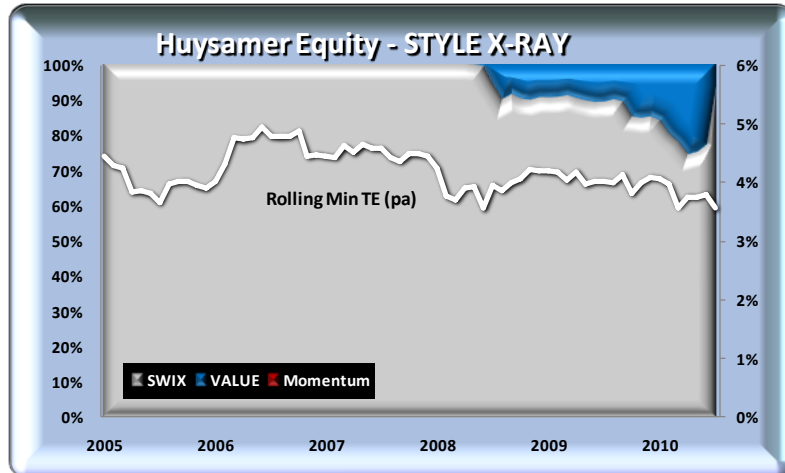
### Foord Specialist Domestic Equity





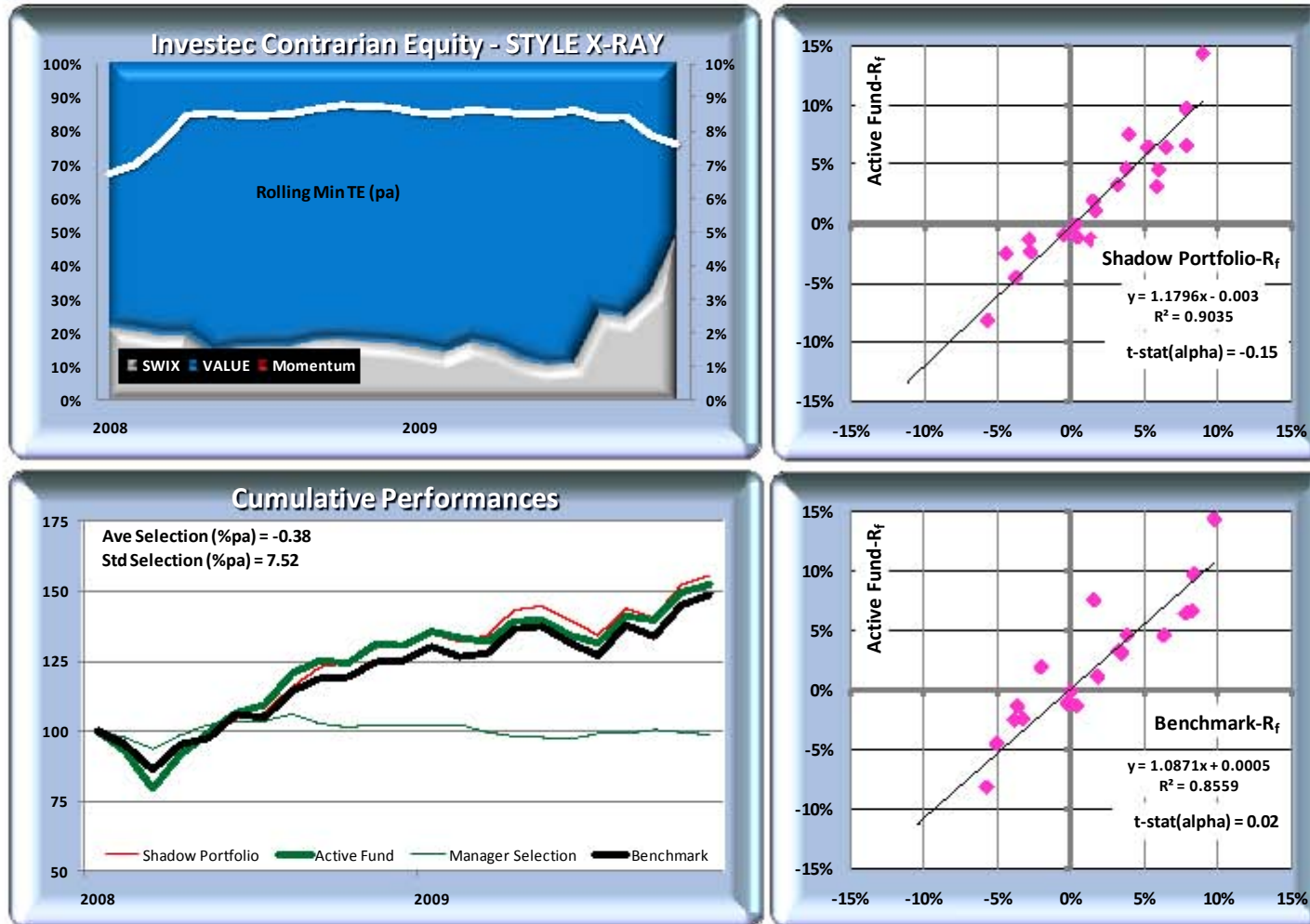
## APPENDIX A.23

### Huysamer Equity



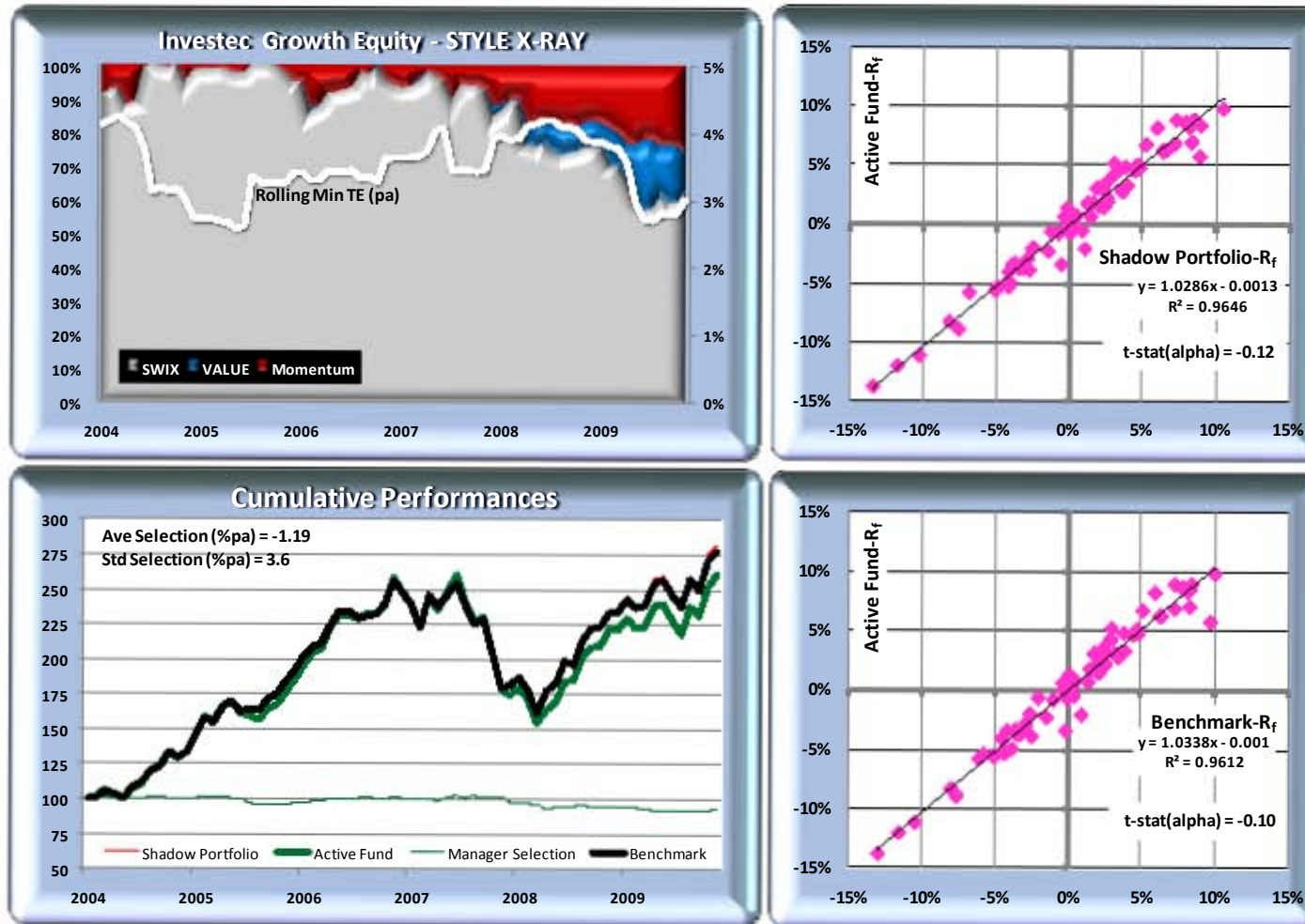
## APPENDIX A.24

### Investec Contrarian Equity



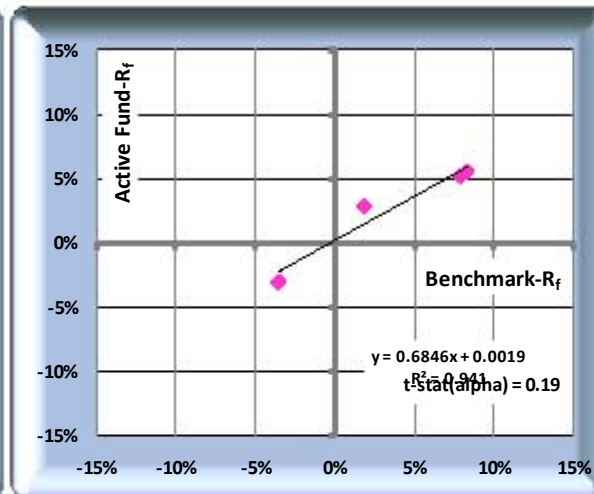
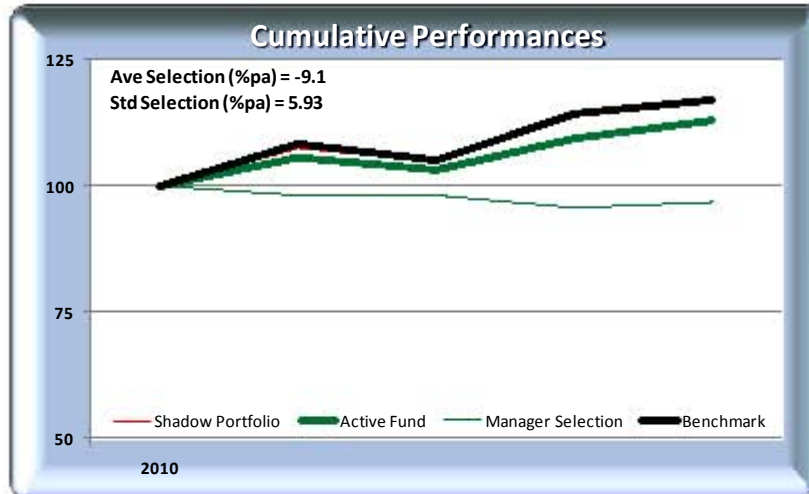
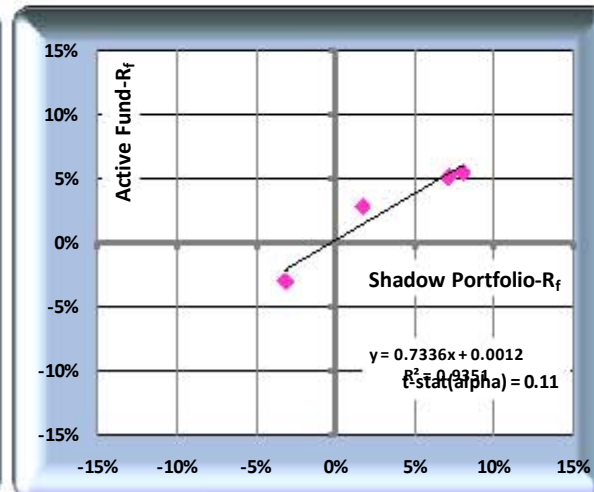
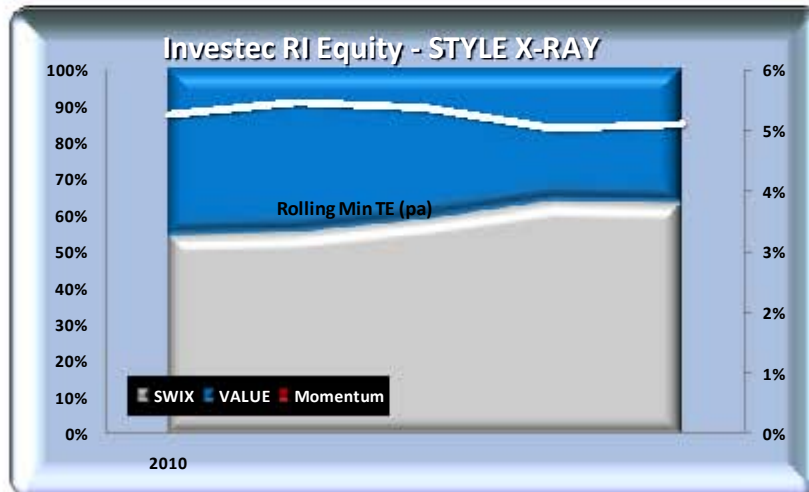
## APPENDIX A.25

### Investec Growth Equity



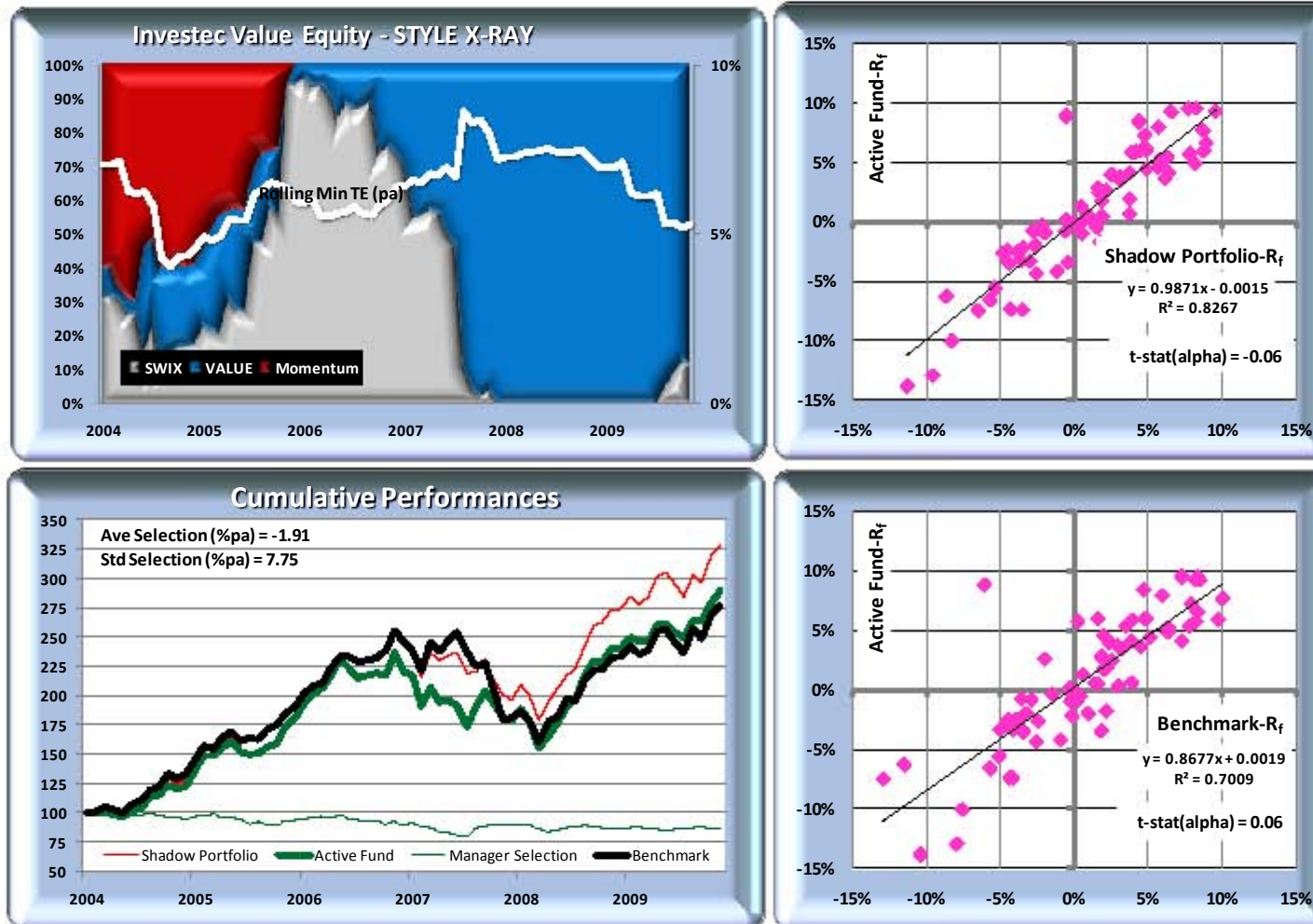
## APPENDIX A.26

### Investec RI Equity



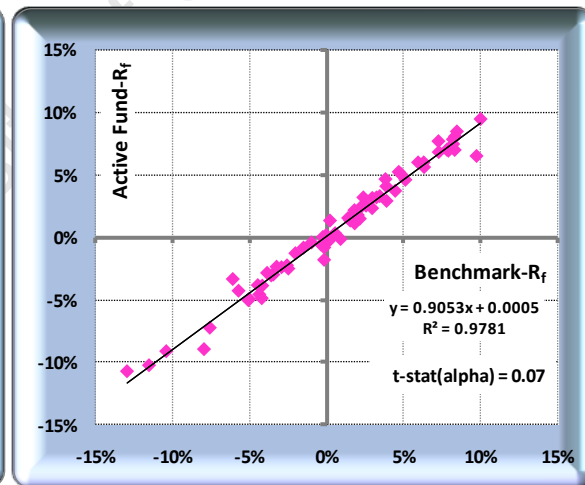
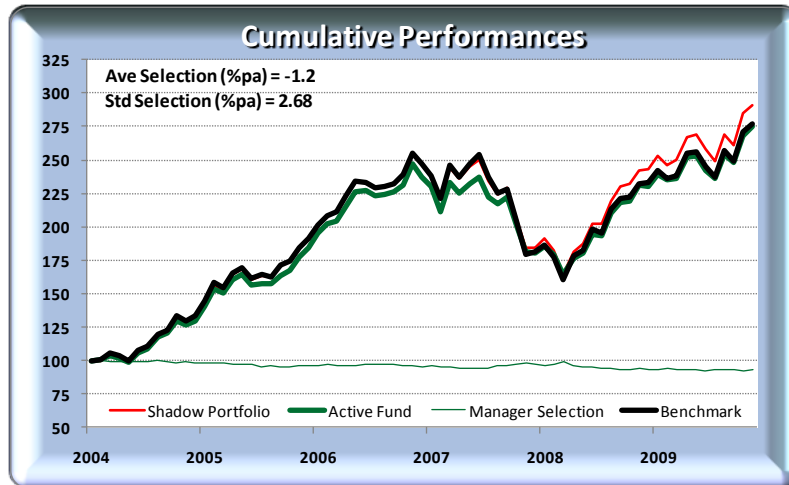
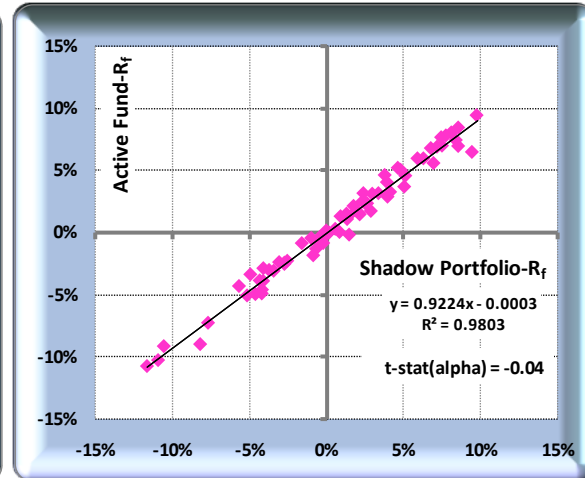
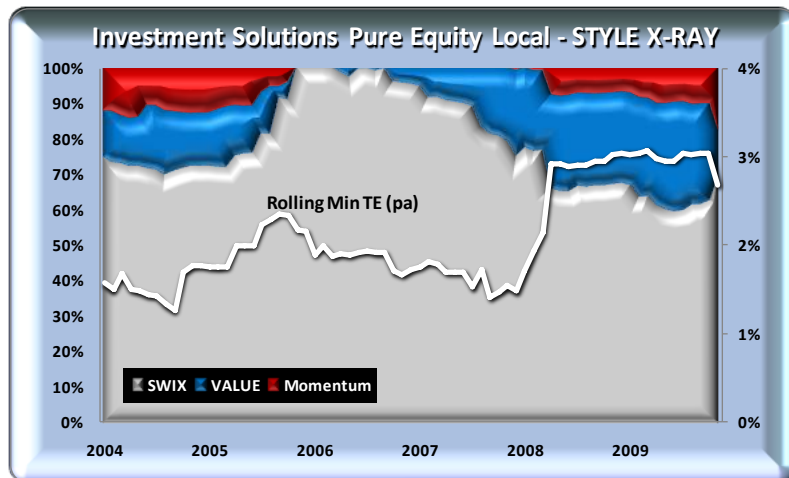
## APPENDIX A.27

### Investec Value Equity



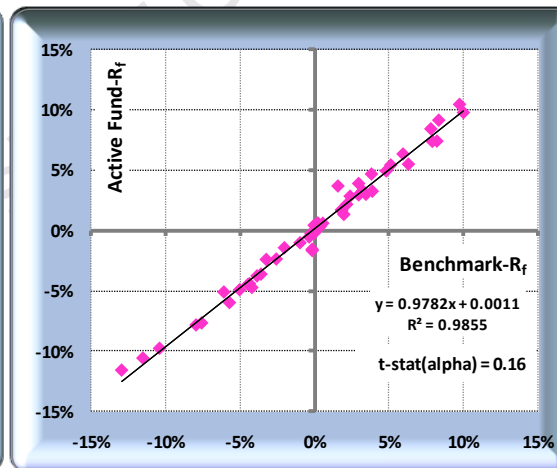
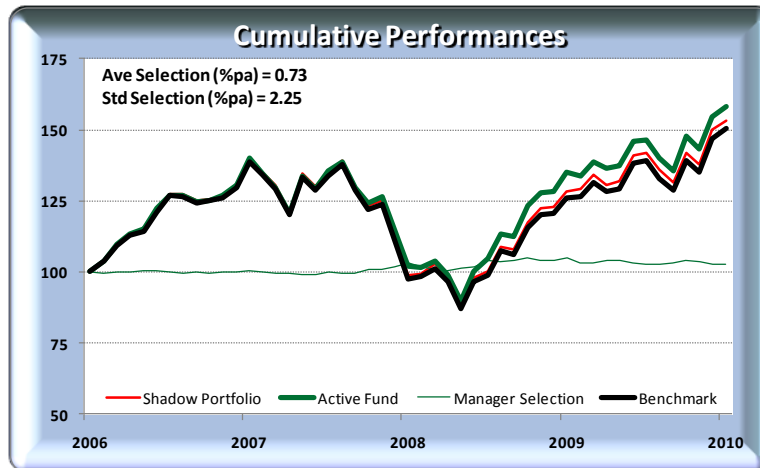
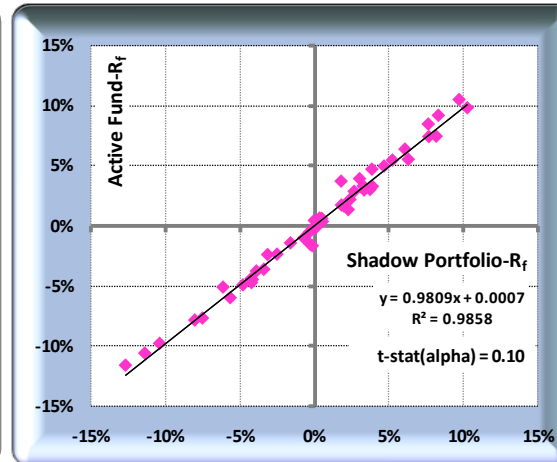
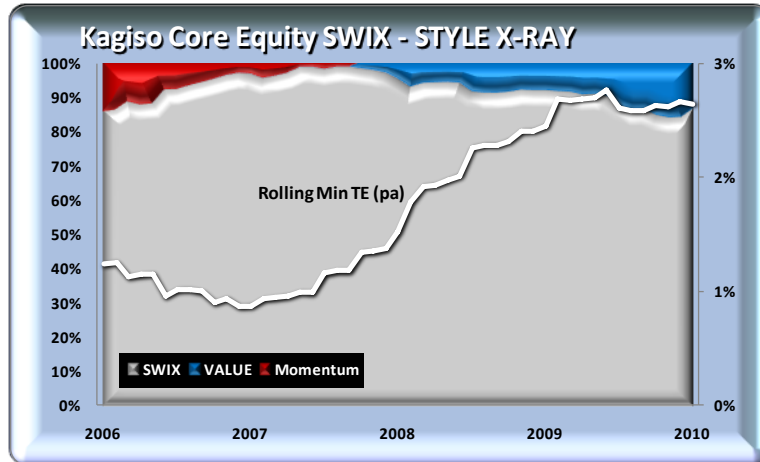
## APPENDIX A.28

### Investment Solutions Pure Equity Local



## APPENDIX A.29

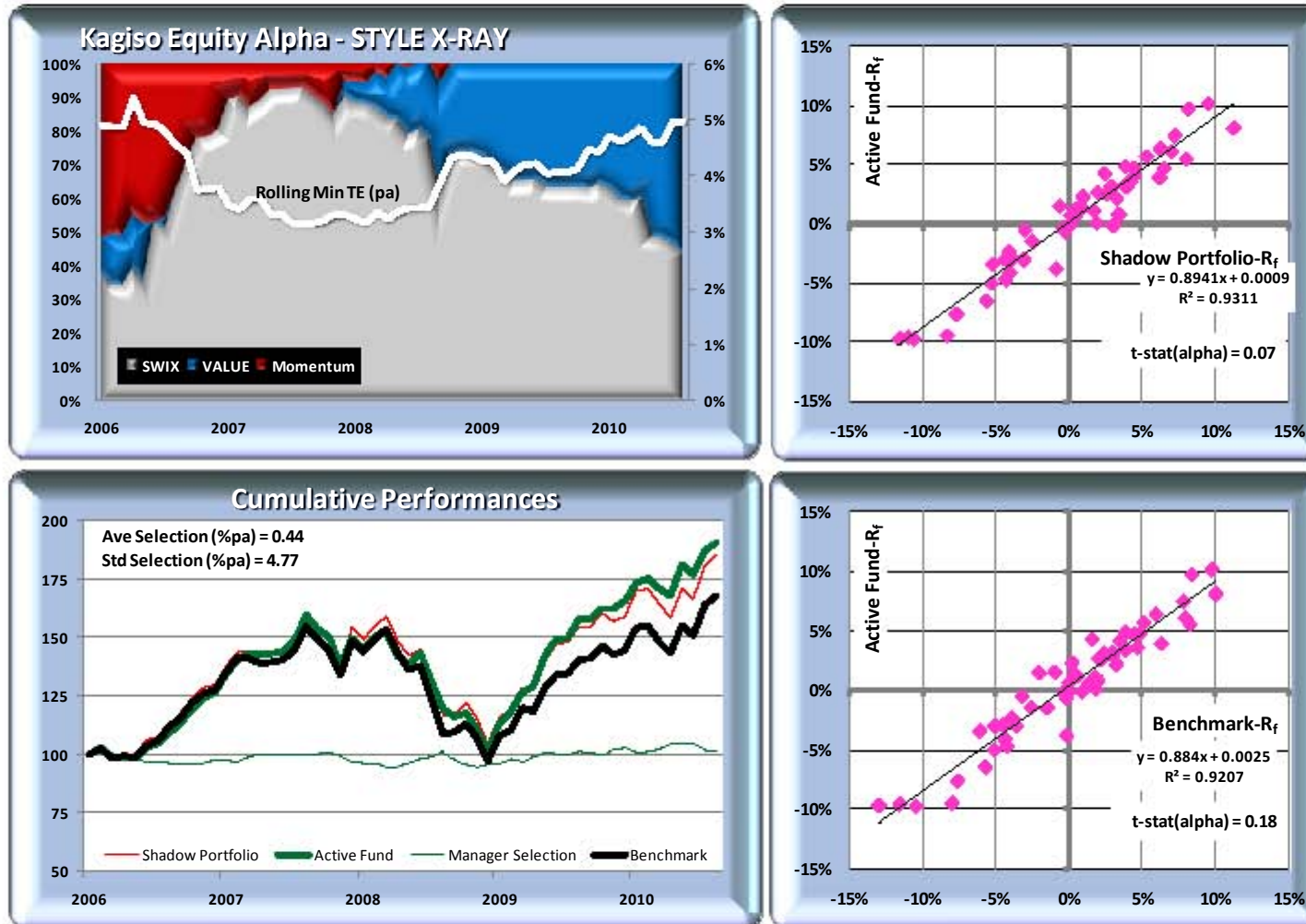
### Kagiso Core Equity SWIX





## APPENDIX A.30

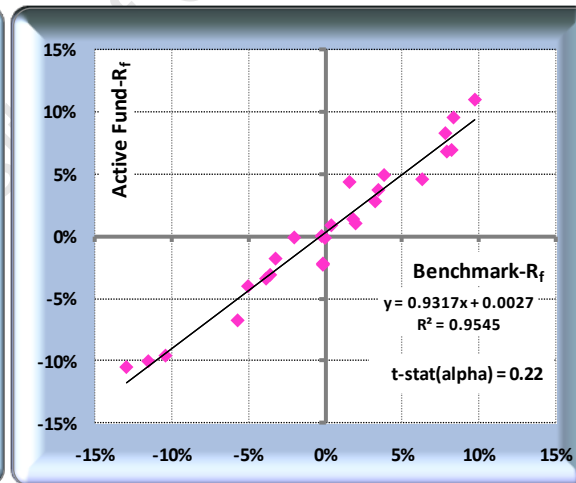
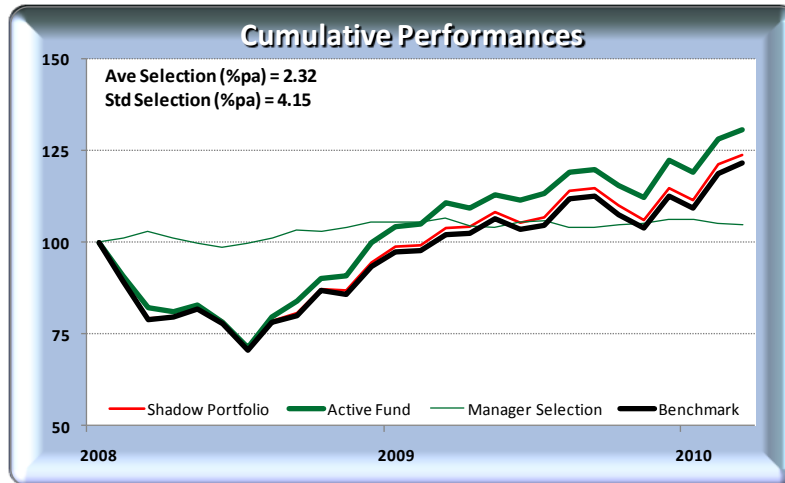
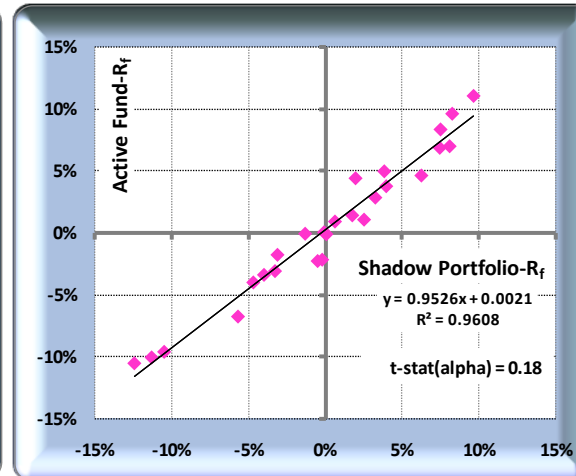
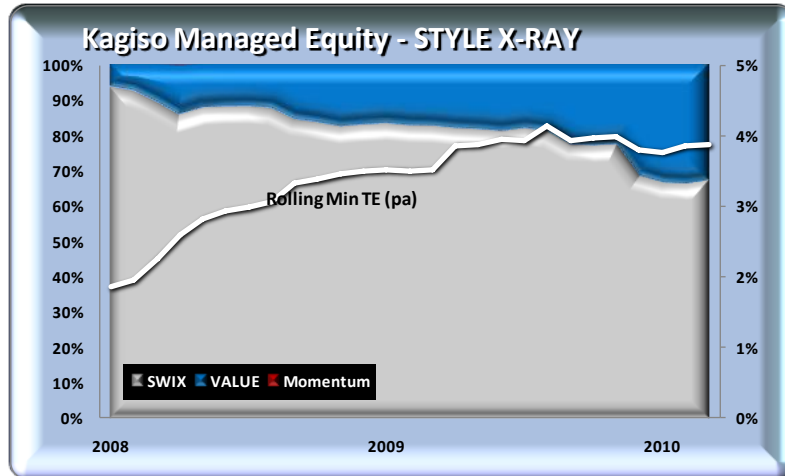
### Kagiso Equity Alpha UT





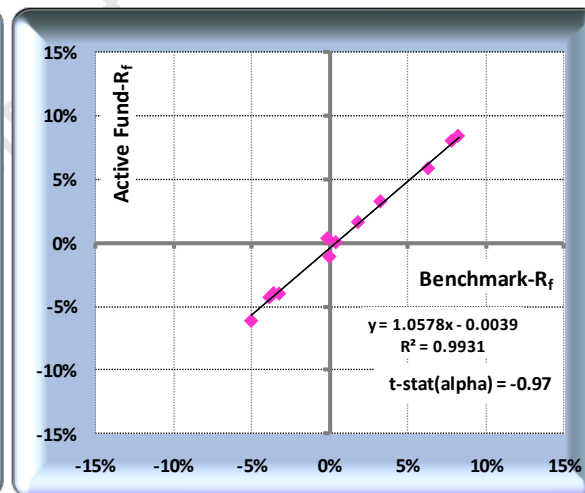
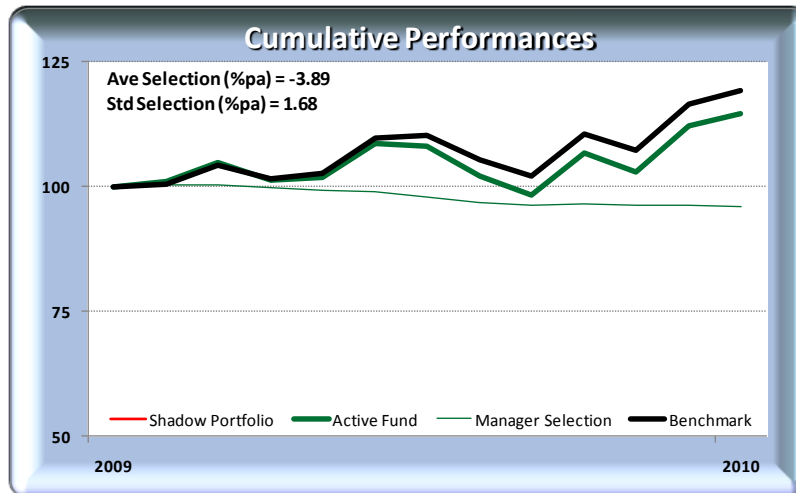
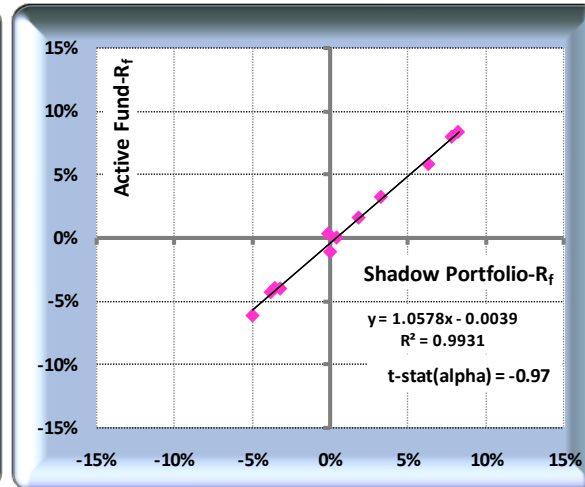
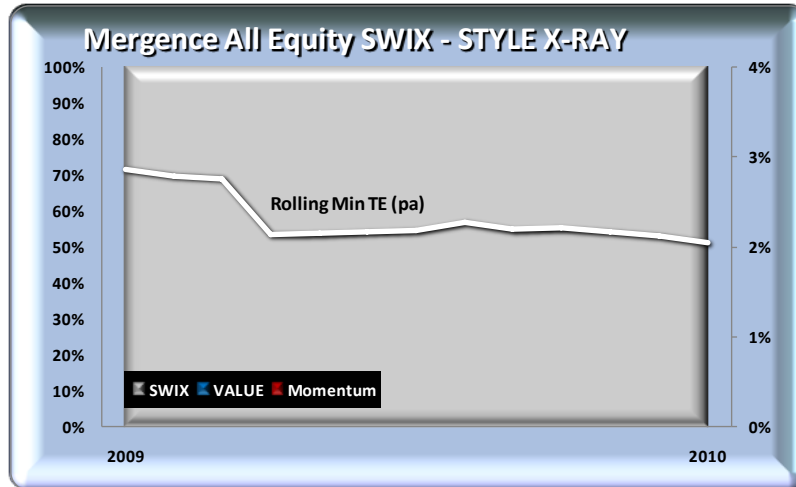
## APPENDIX A.31

### Kagiso Managed Equity



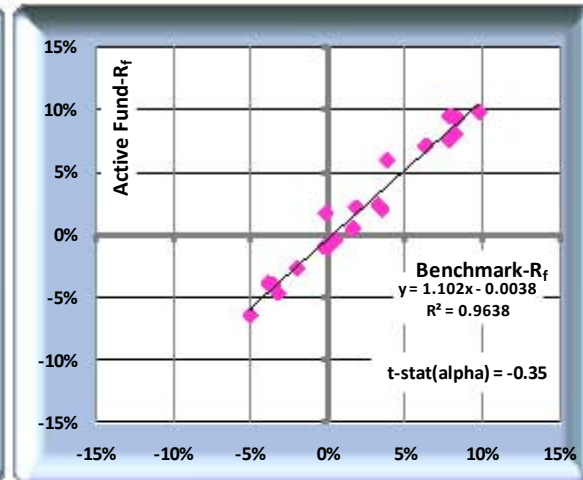
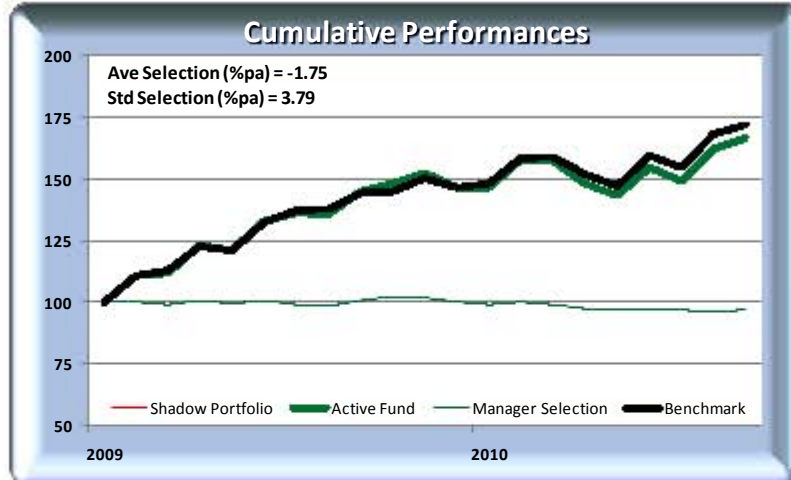
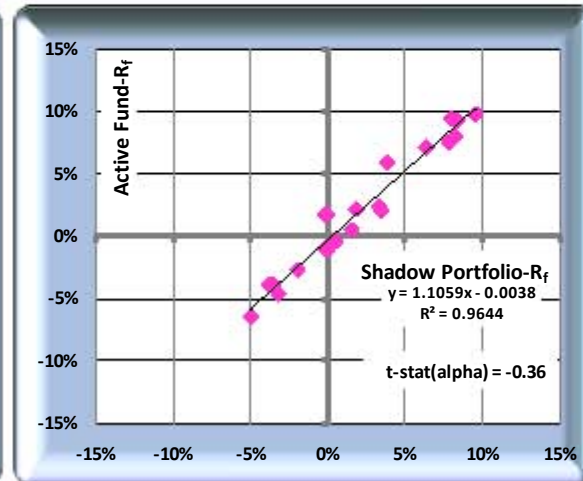
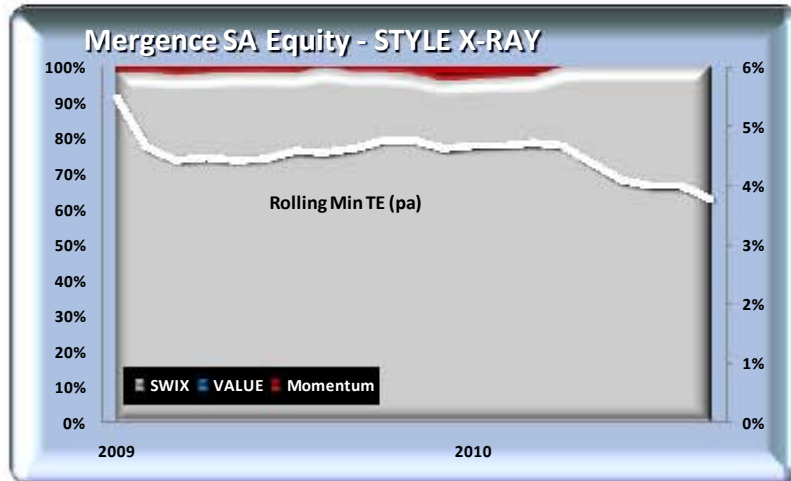
## APPENDIX A.32

### Mergence All Equity SWIX



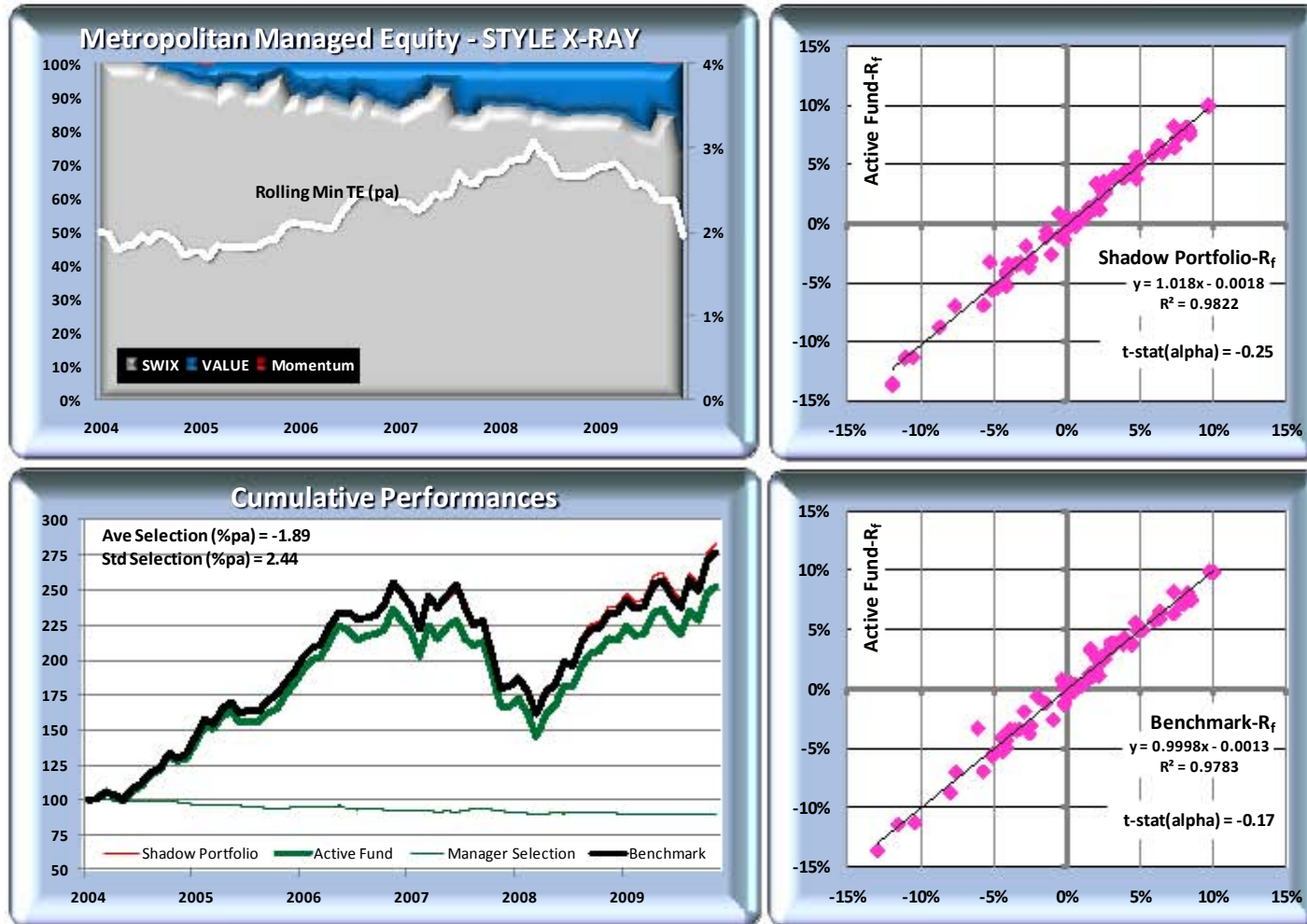
## APPENDIX A.33

### Mergence SA Equity



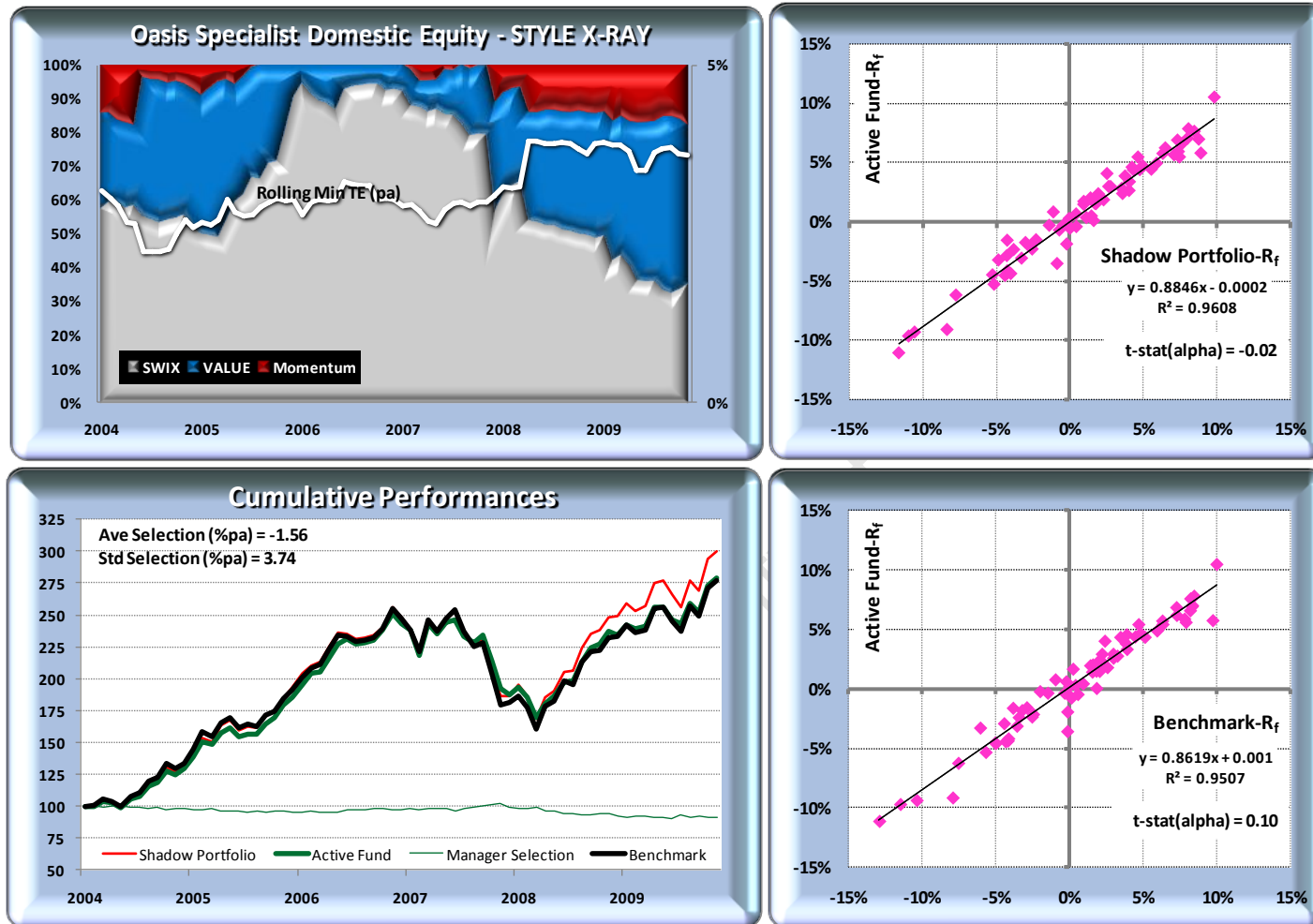
## APPENDIX A.34

### Metropolitan Managed Equity



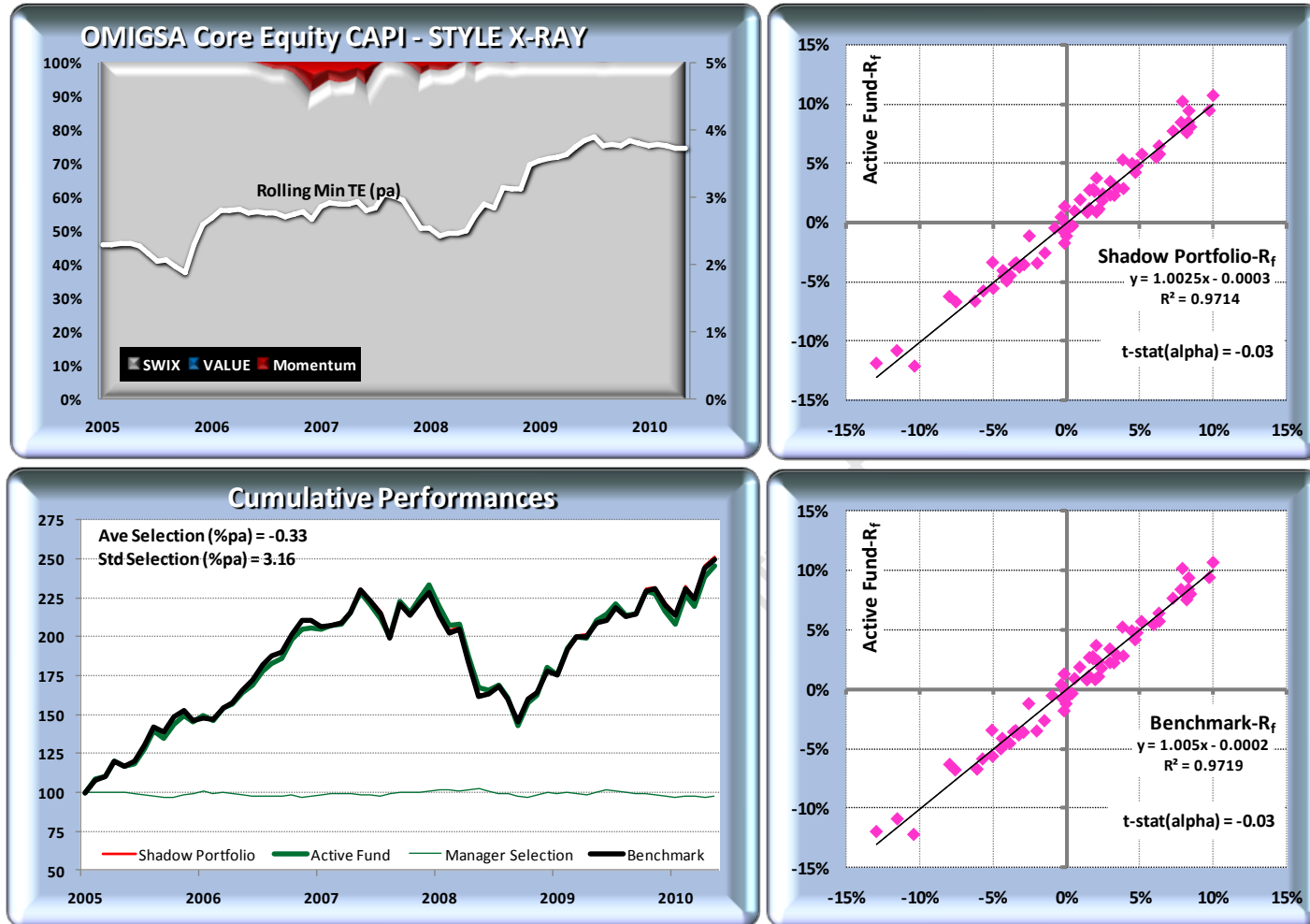
## APPENDIX A.35

### Oasis Specialist Domestic Equity



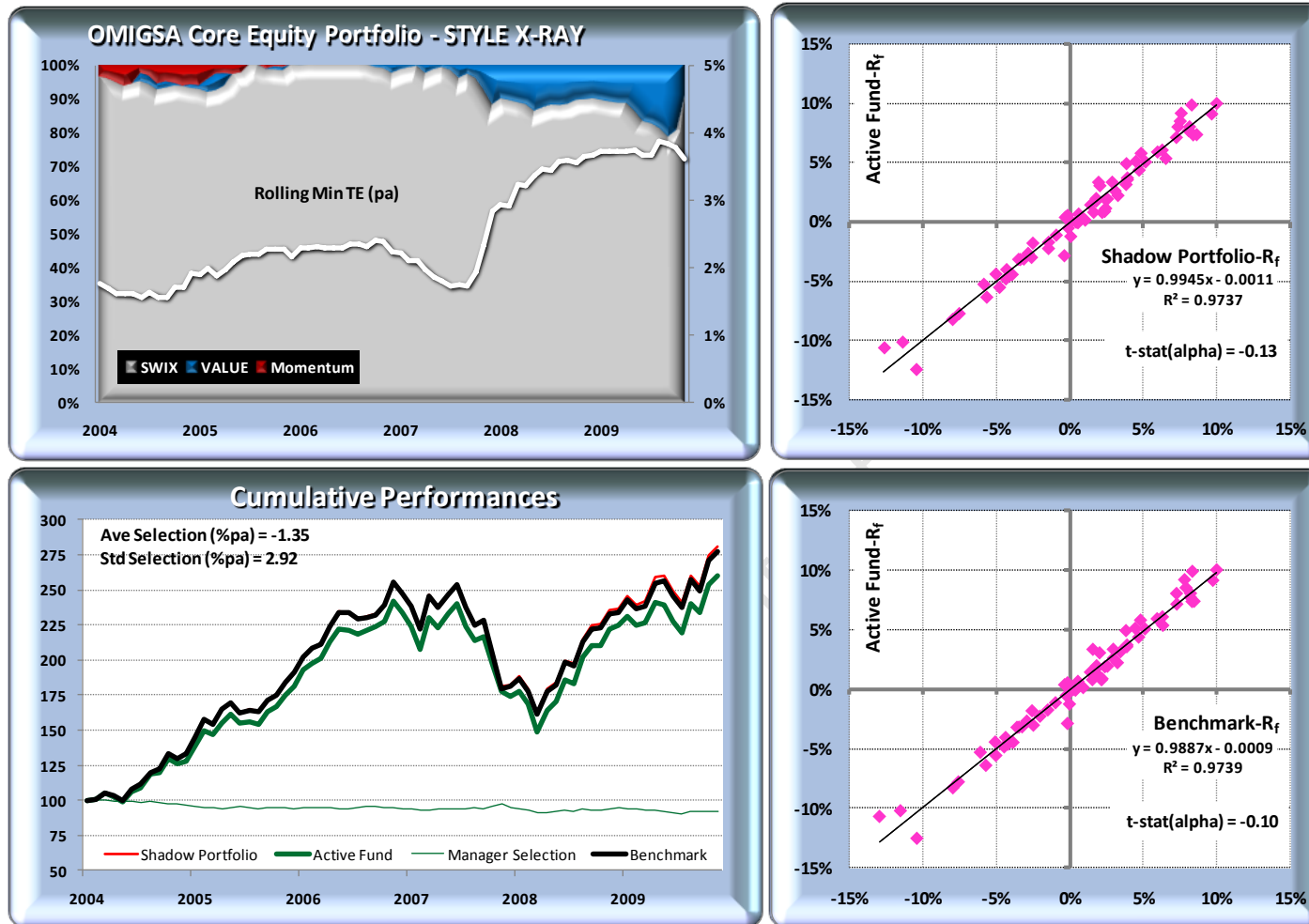
## APPENDIX A.36

### OMIGSA Core Equity CAPI



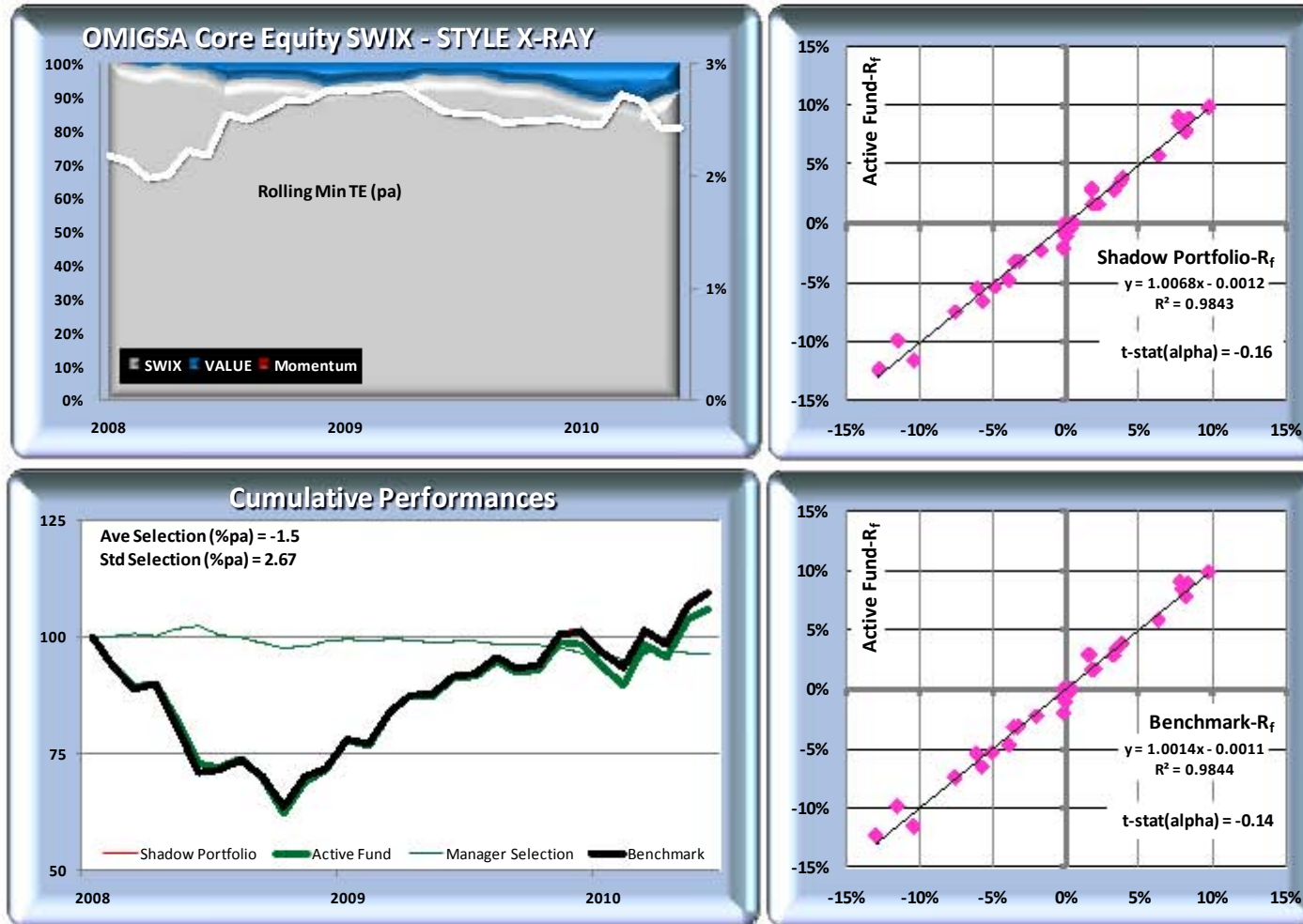
## APPENDIX A.37

### OMIGSA Core Equity Portfolio



## APPENDIX A.38

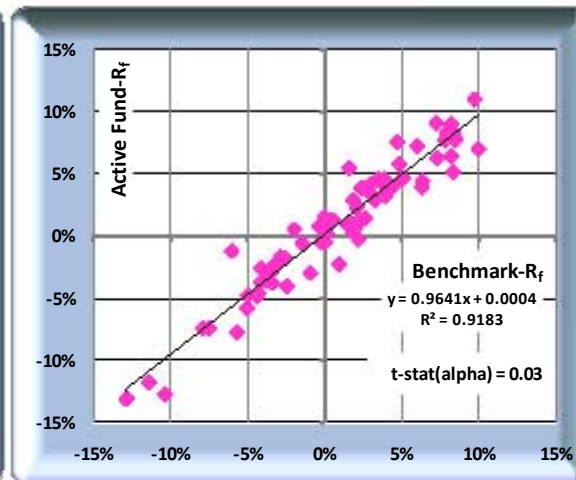
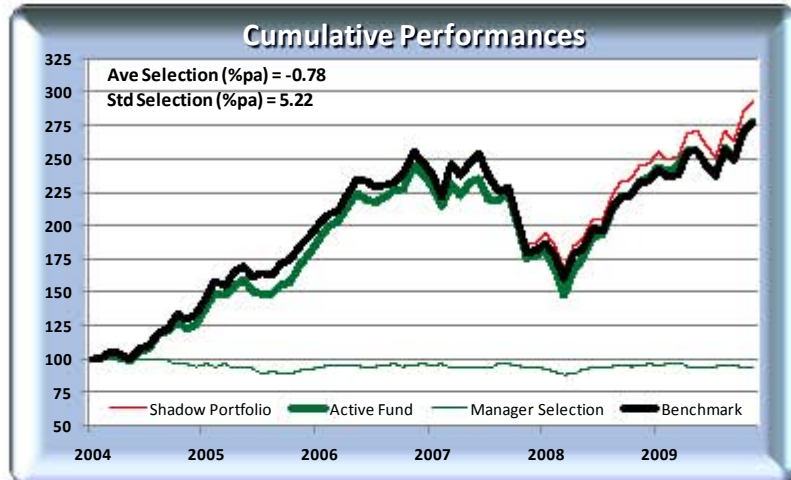
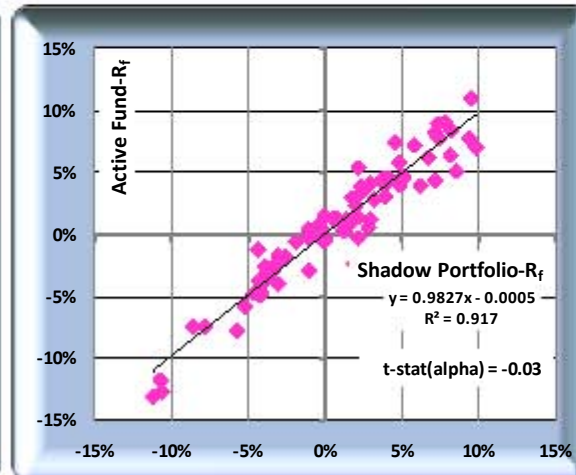
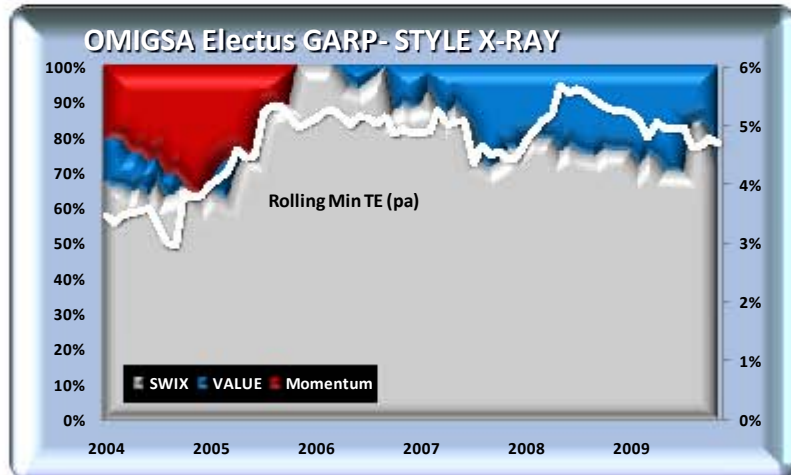
### OMIGSA Core Equity SWIX





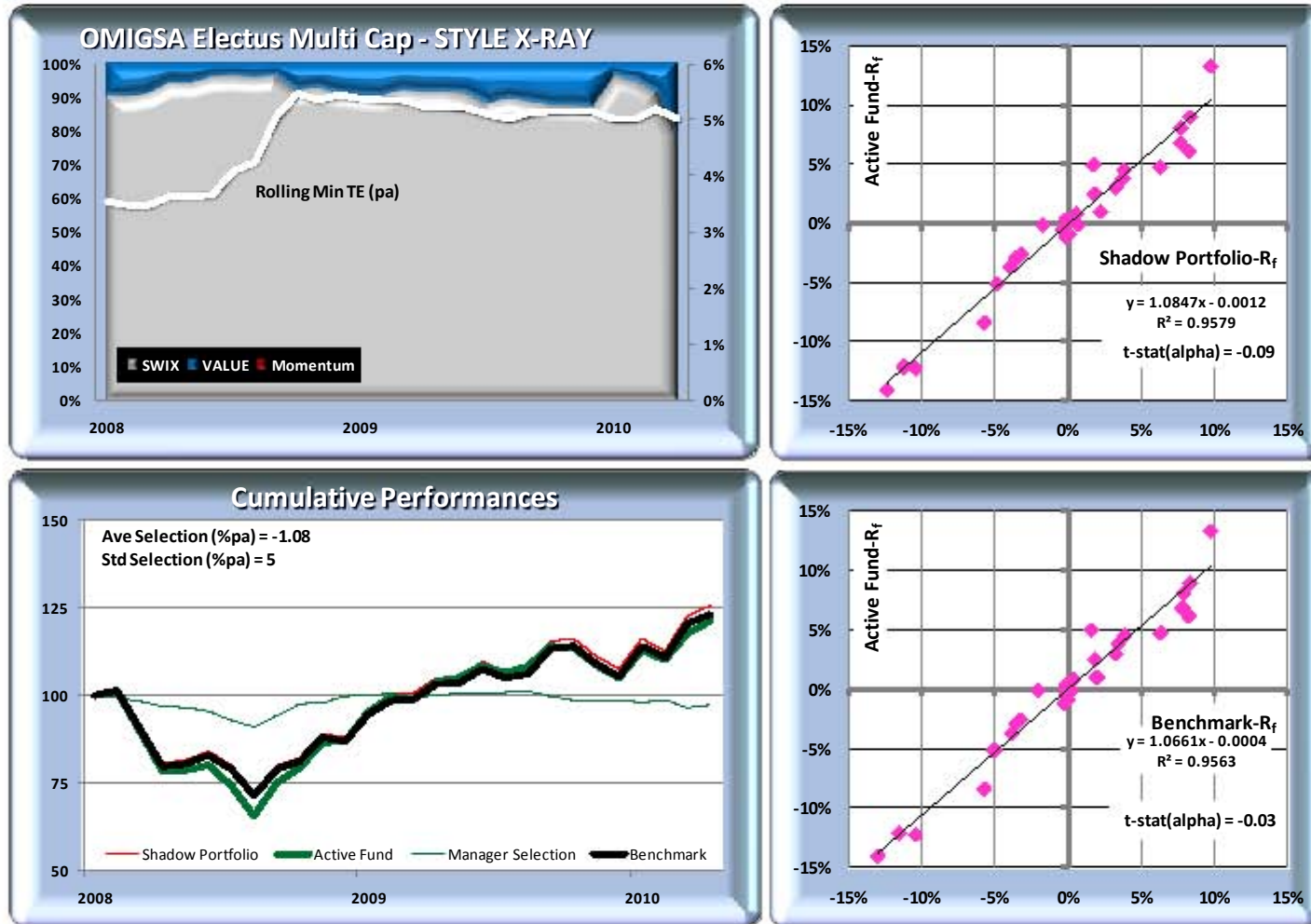
## APPENDIX A.39

### OMIGSA Electus GARP



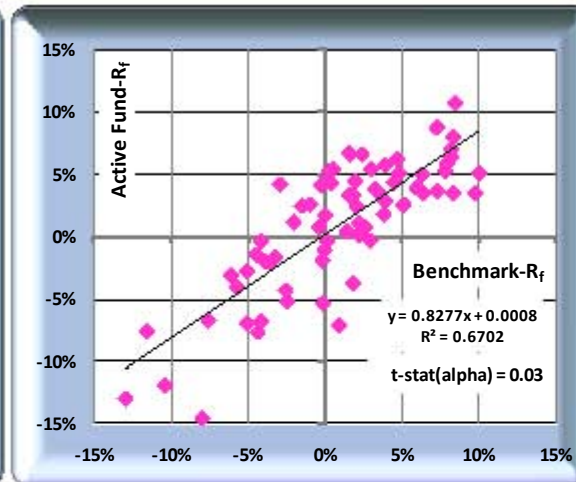
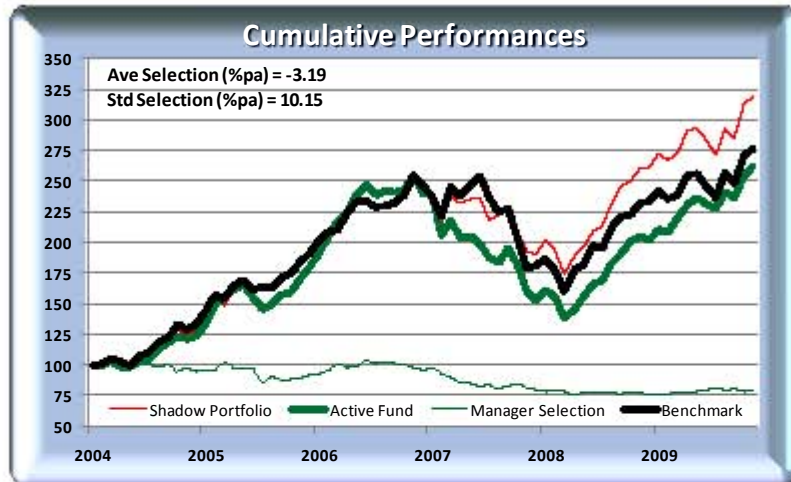
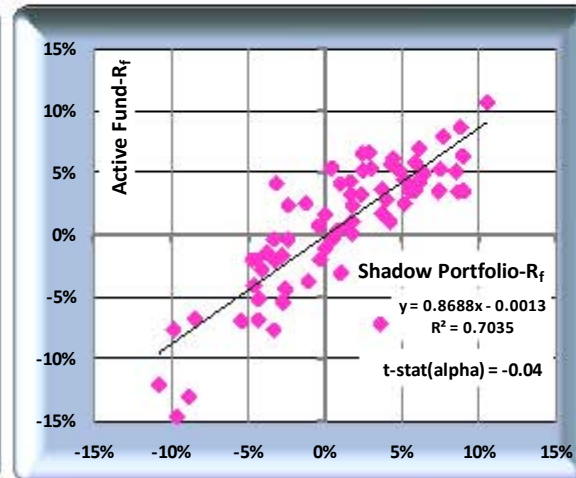
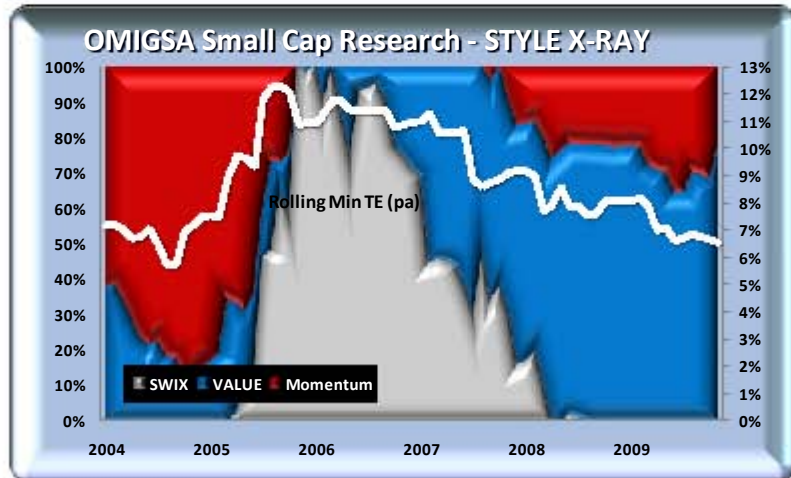
## APPENDIX A.40

### OMIGSA Electus Multi Cap



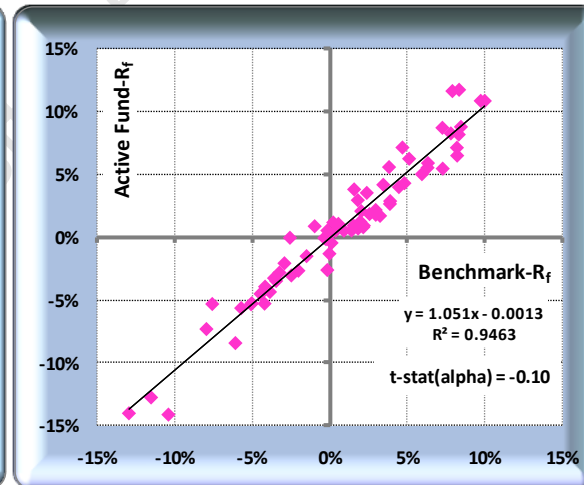
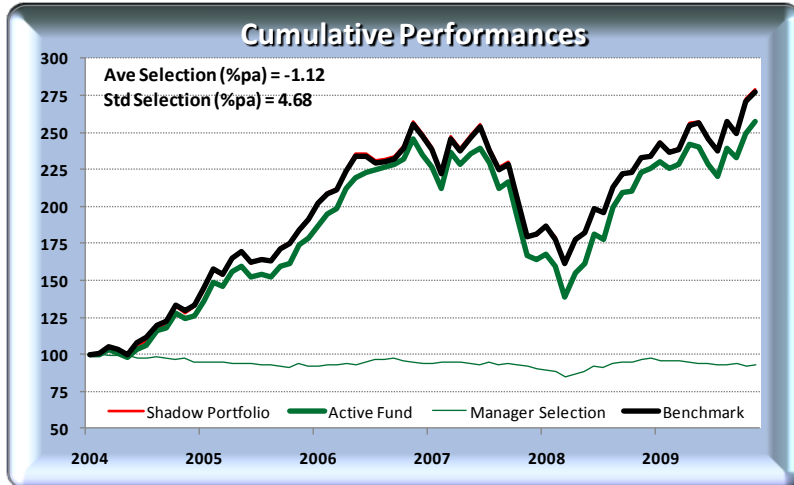
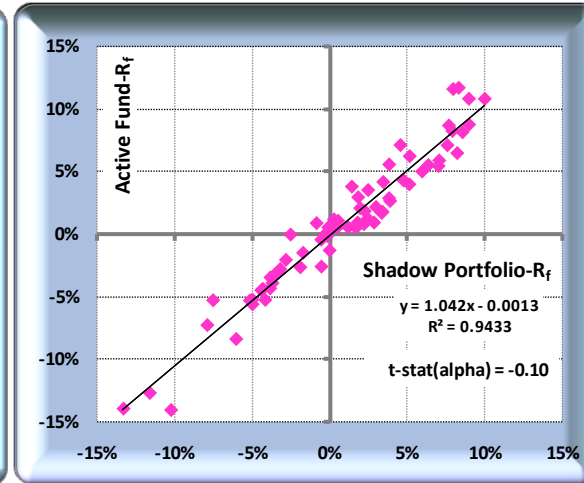
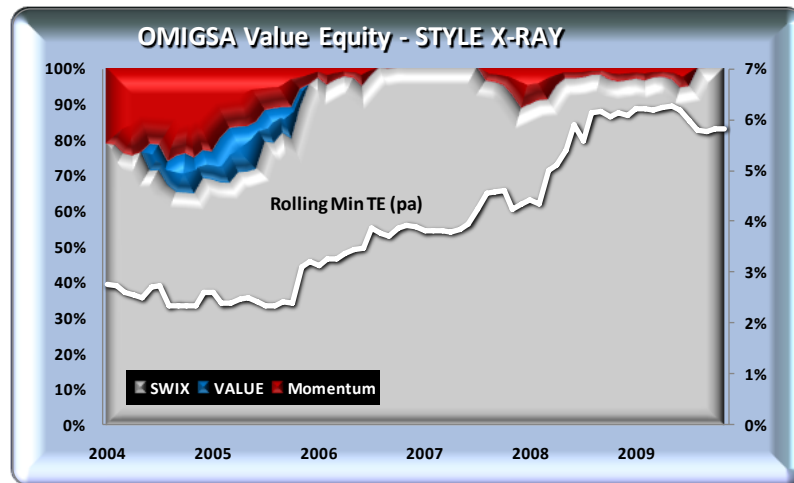
## APPENDIX A.41

### OMIGSA Small Cap Research



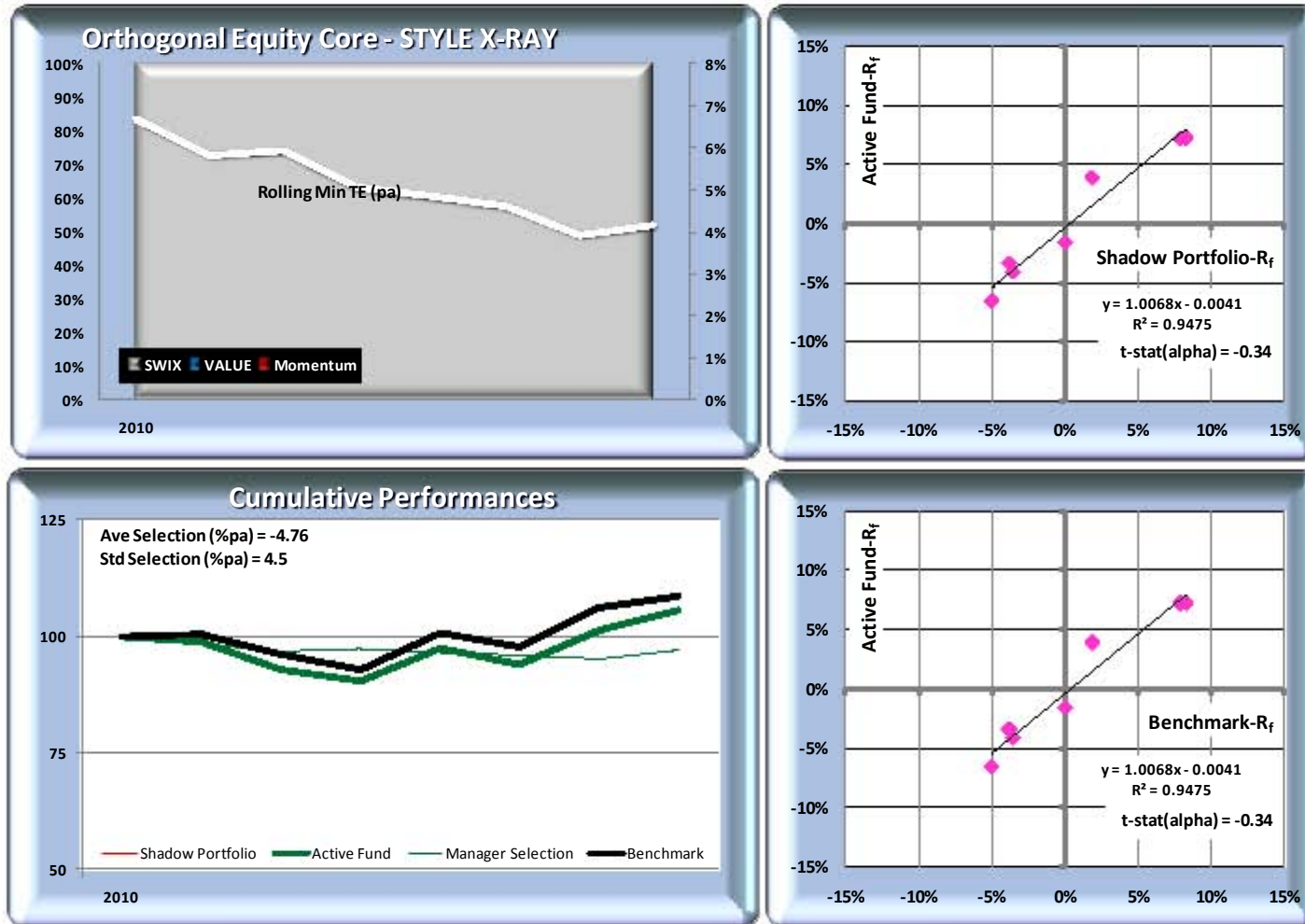
## APPENDIX A.42

### OMIGSA Value Equity



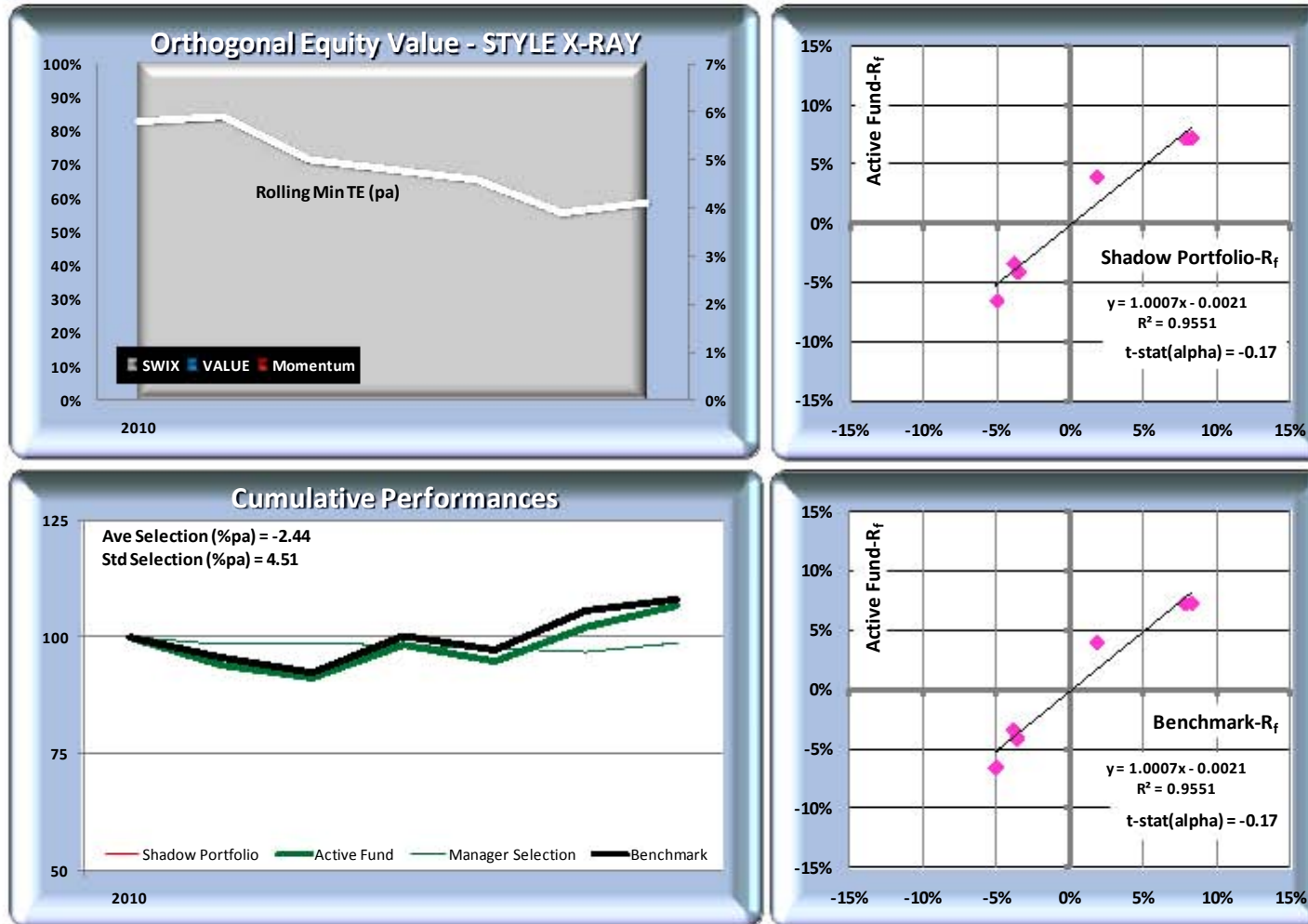
## APPENDIX A.43

### Orthogonal Equity Core



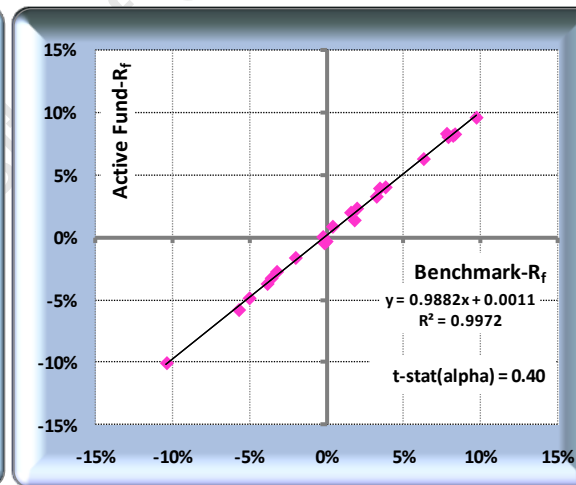
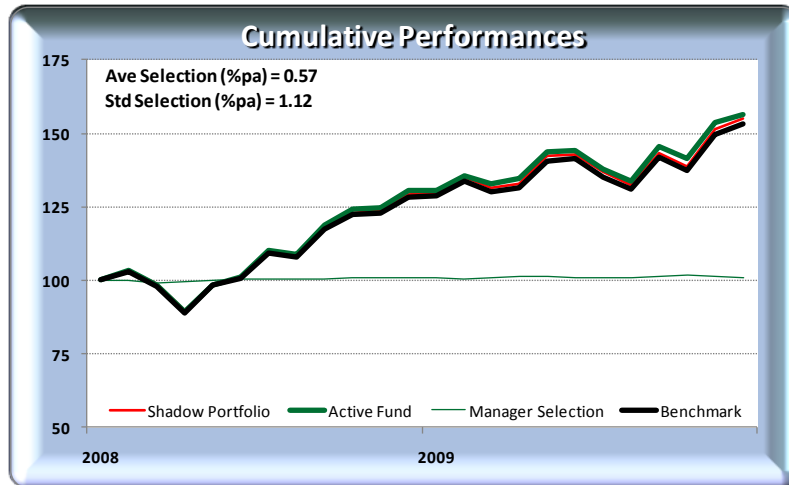
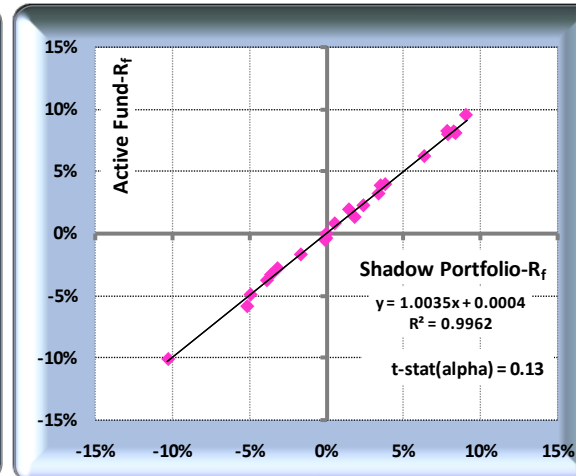
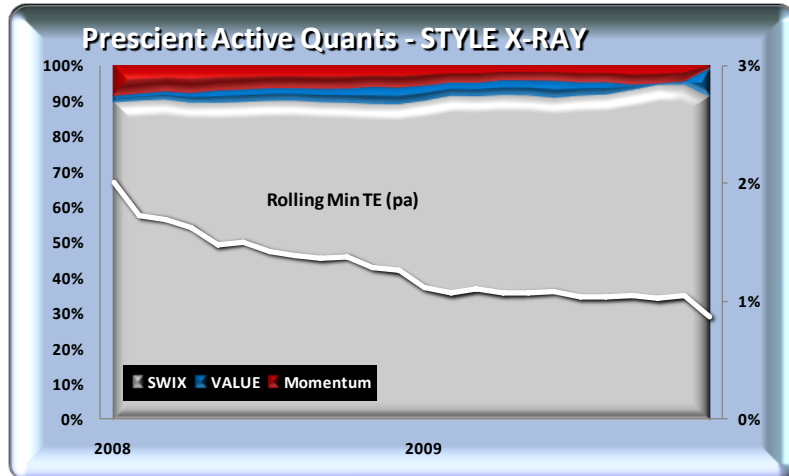
## APPENDIX A.44

### Orthogonal Equity Value



## APPENDIX A.45

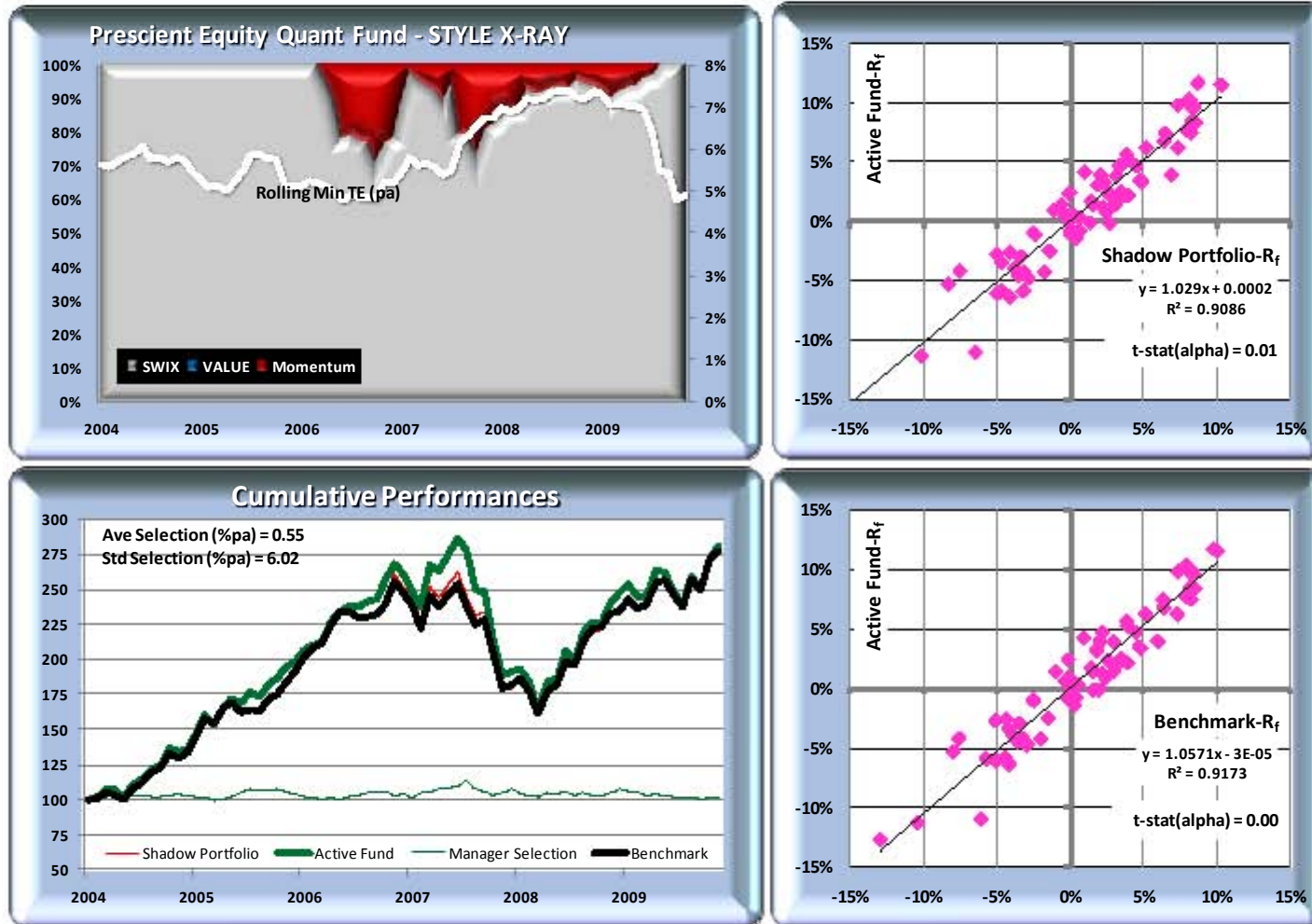
### Prescient Active Quants





## APPENDIX A.46

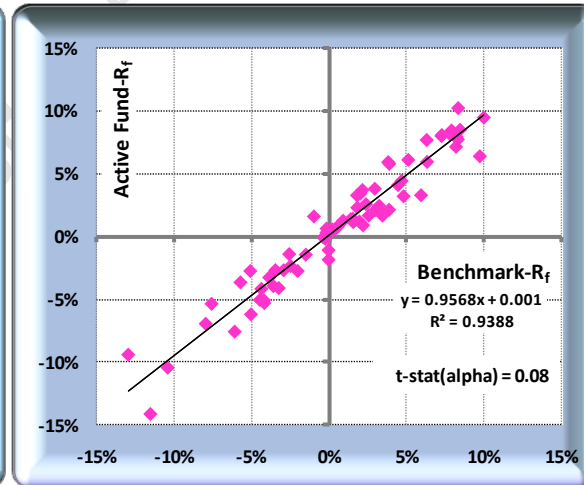
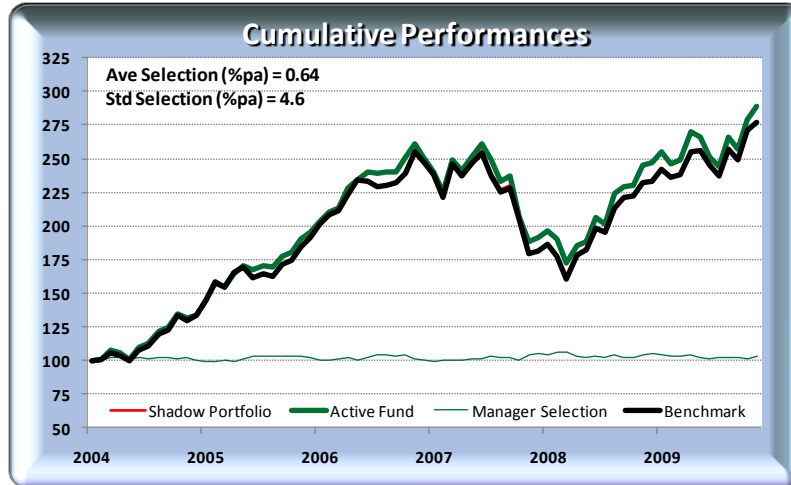
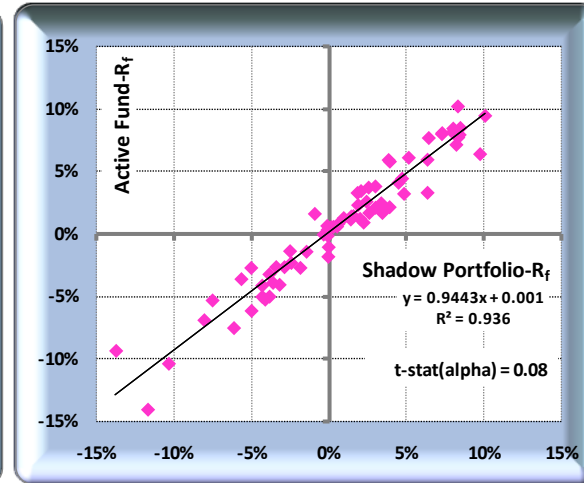
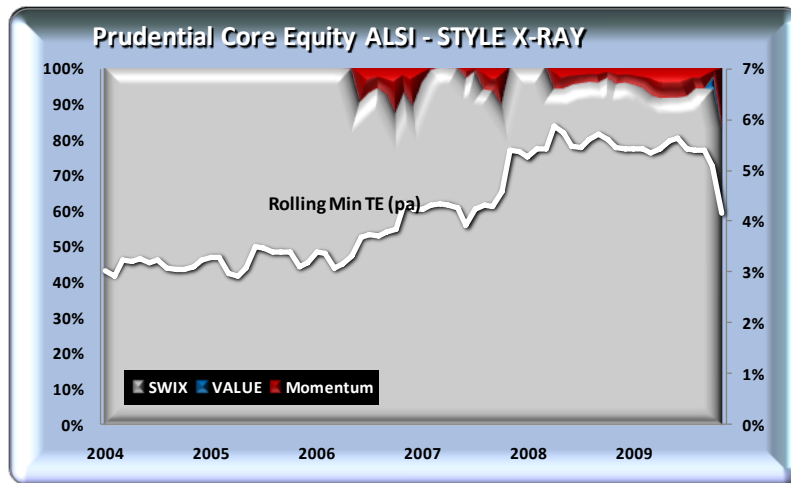
### Prescient Equity Quant Fund





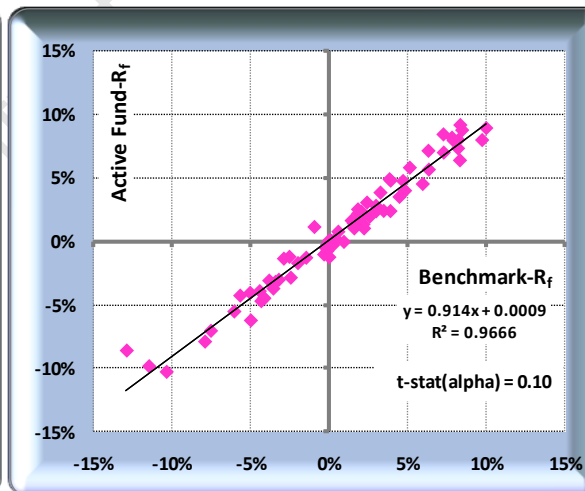
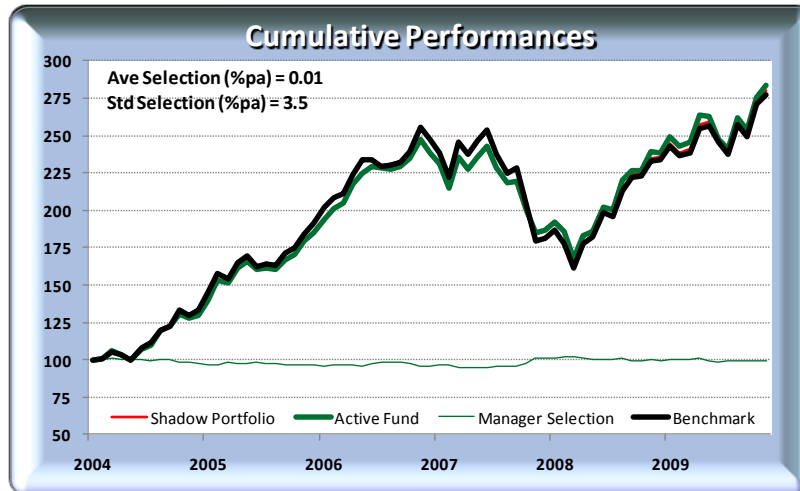
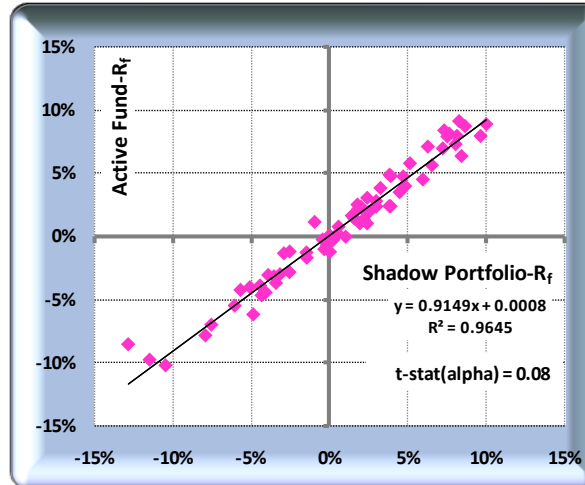
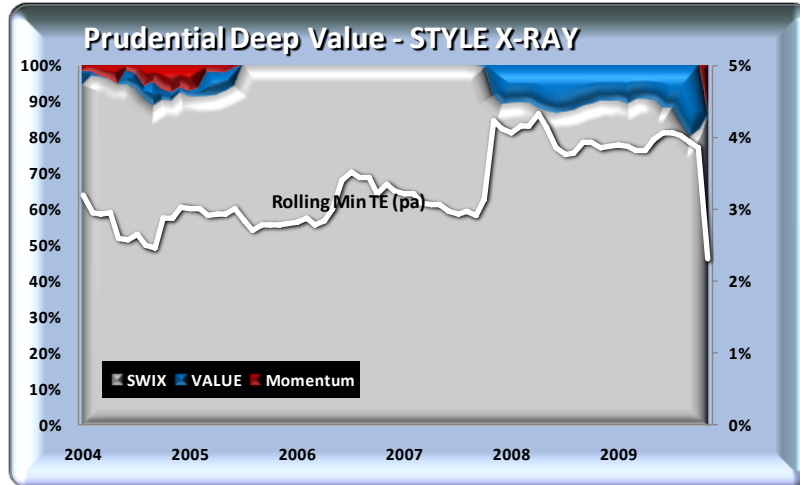
## APPENDIX A.47

### Prudential Core Equity ALSI



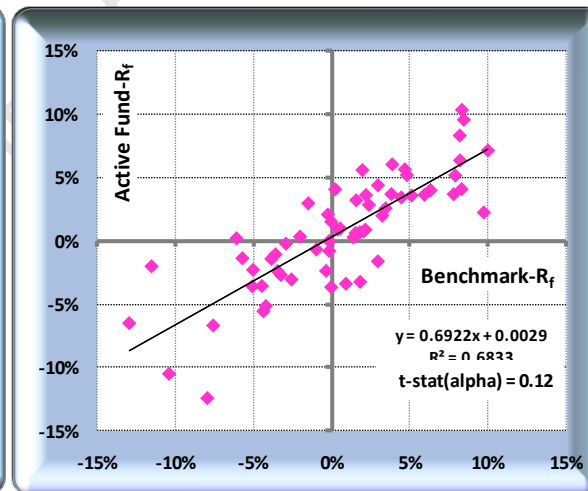
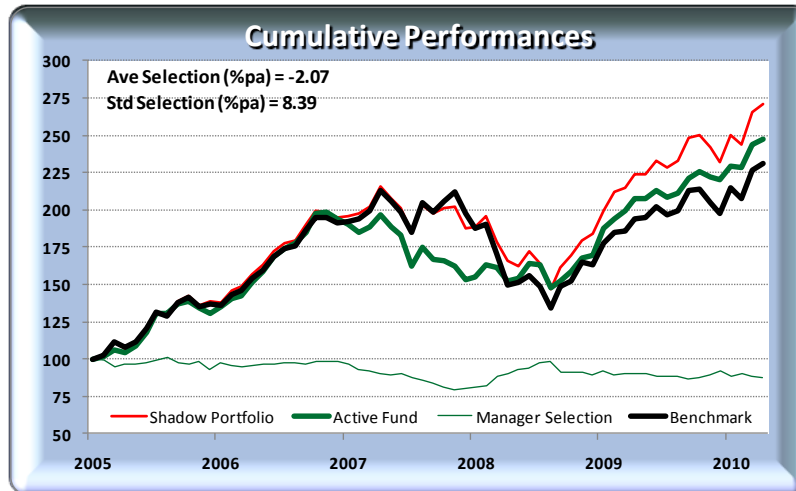
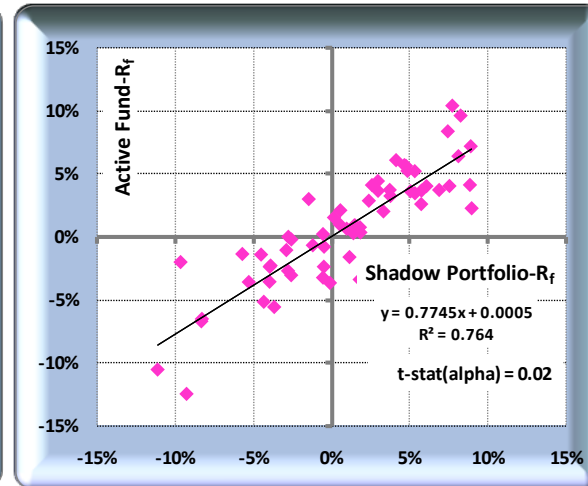
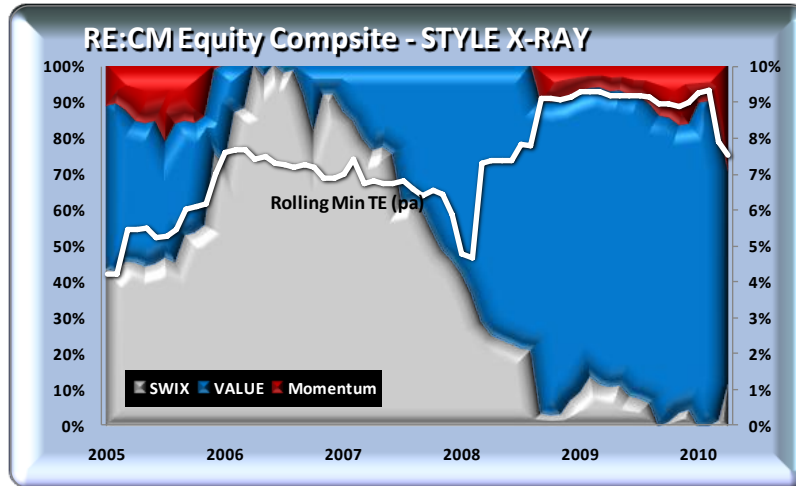
## APPENDIX A.48

### Prudential Deep Value



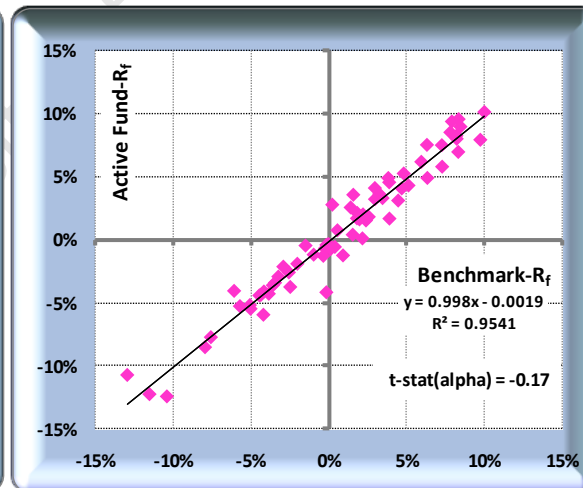
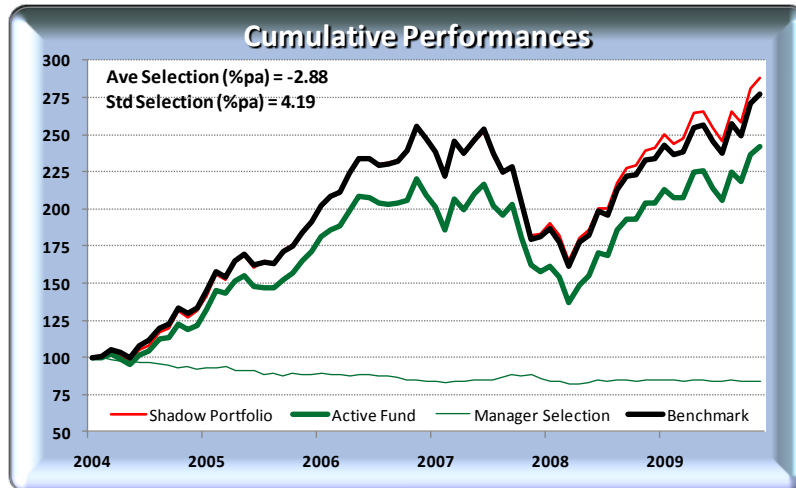
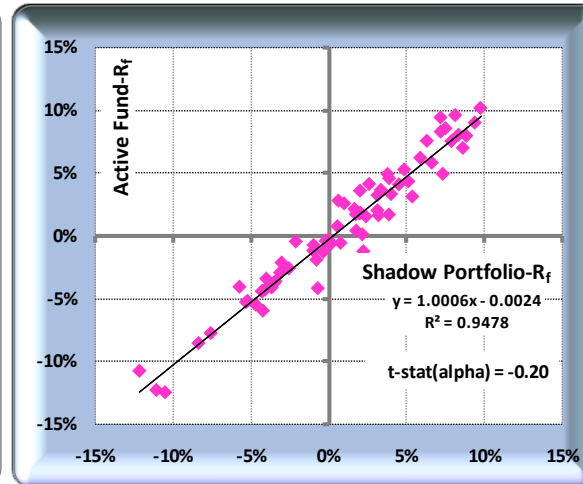
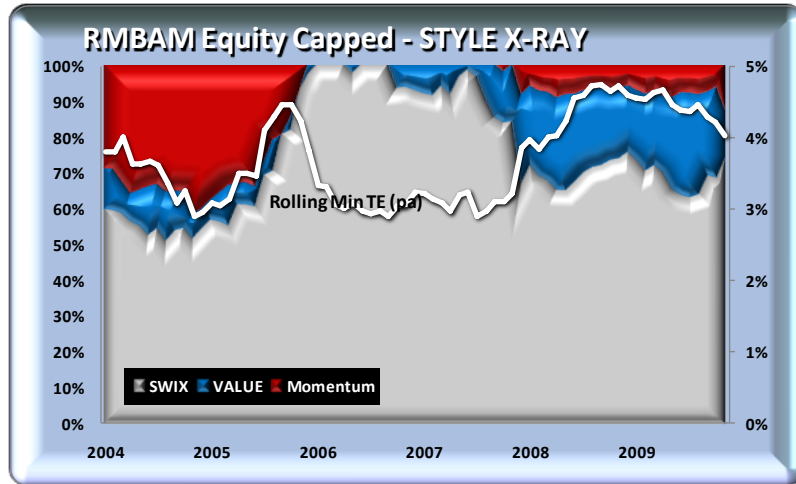
## APPENDIX A.49

### RE:CM Equity Composite



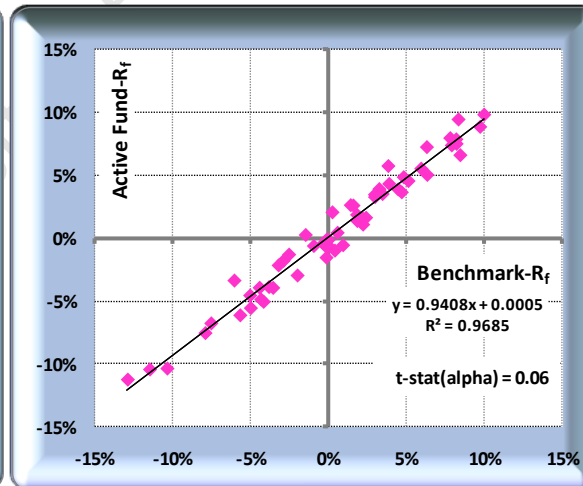
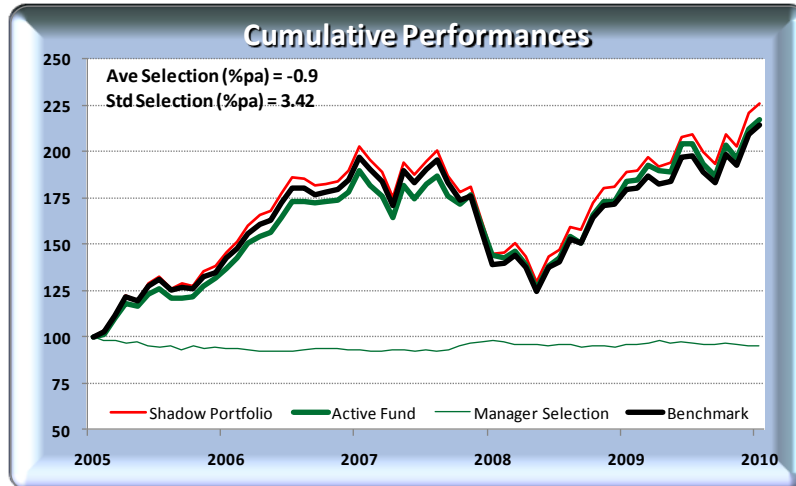
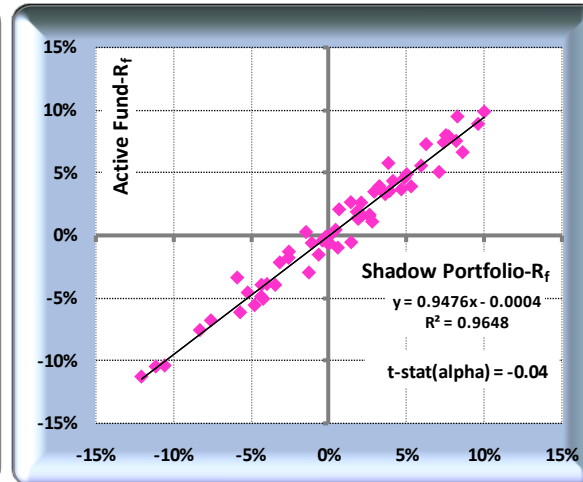
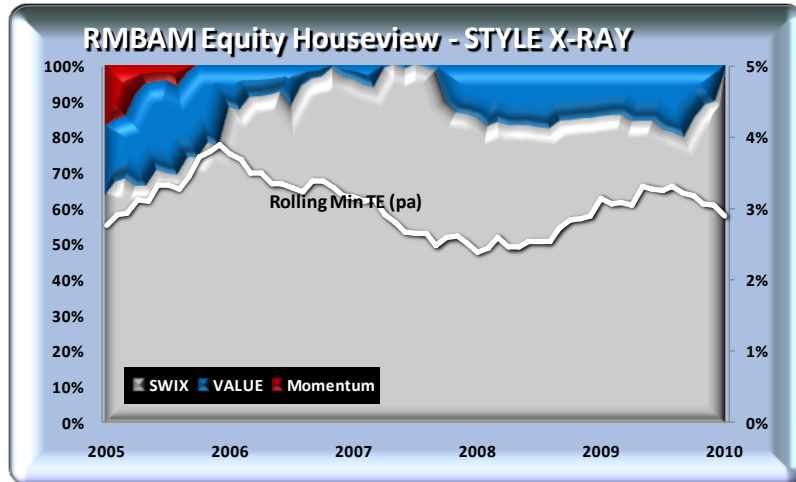
## APPENDIX A.50

### RMBAM Equity Capped



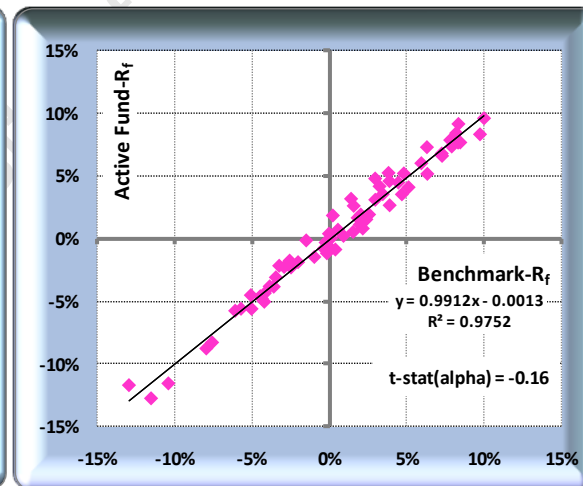
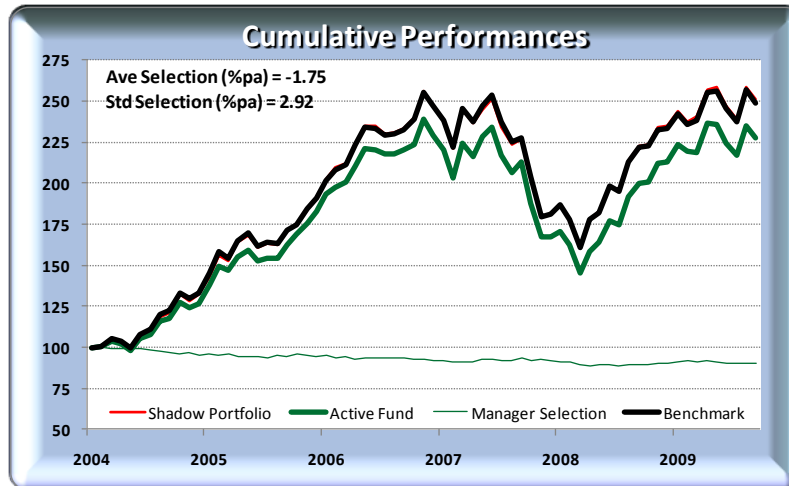
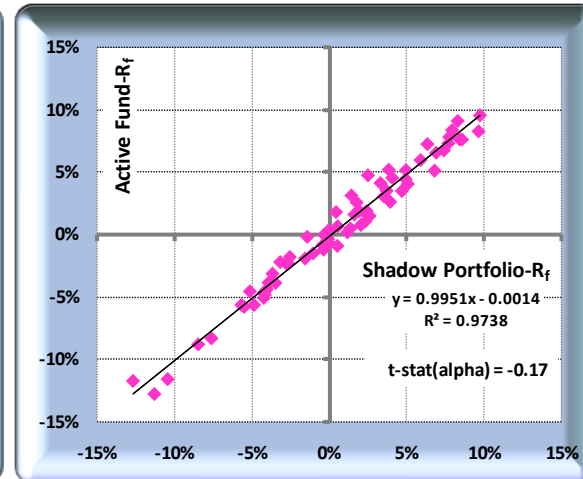
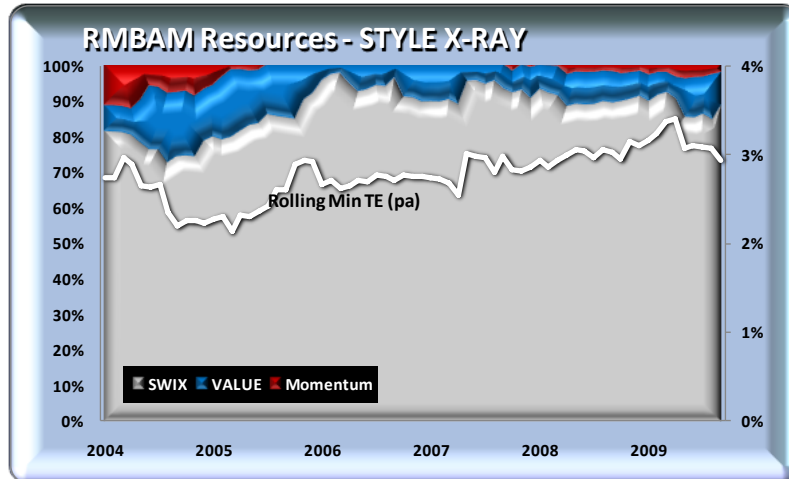
## APPENDIX A.51

### RMBAM Equity Houseview



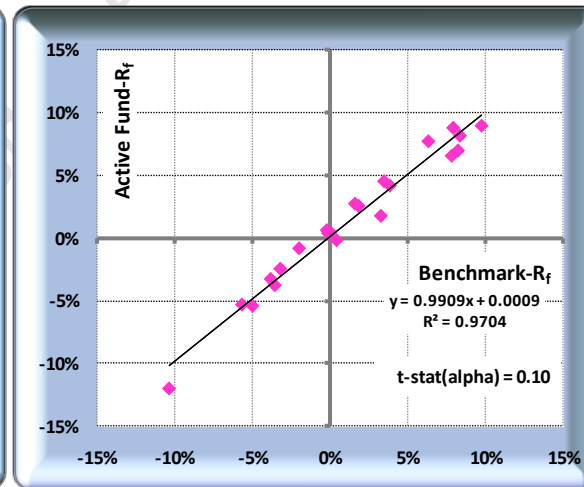
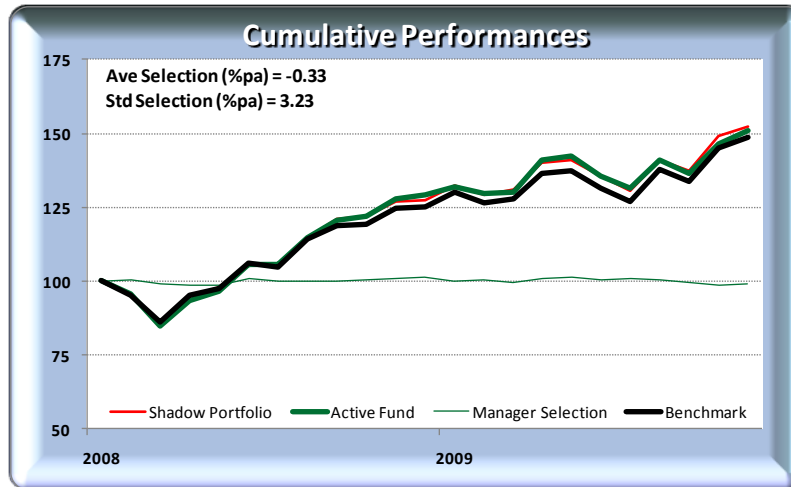
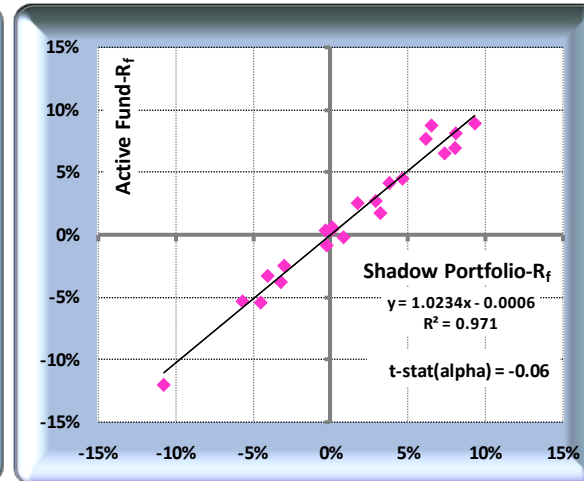
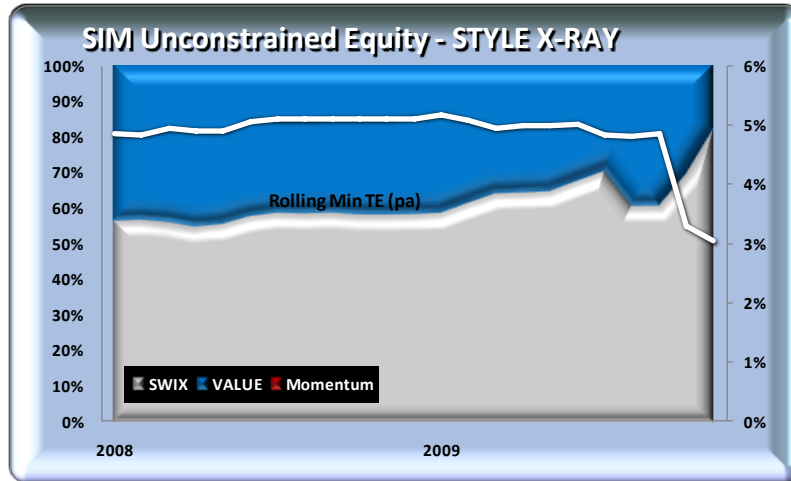
## APPENDIX A.52

### RMBAM Resources



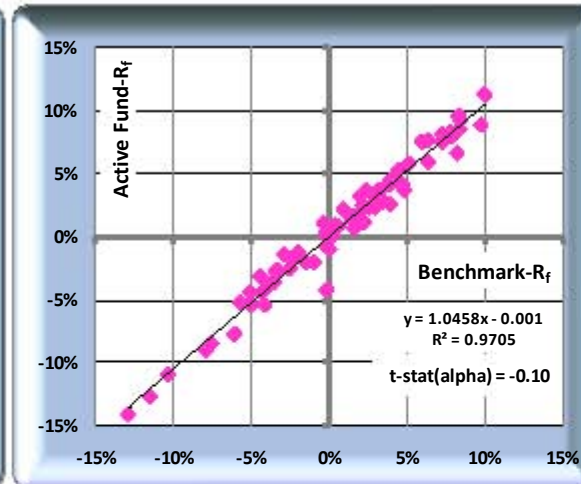
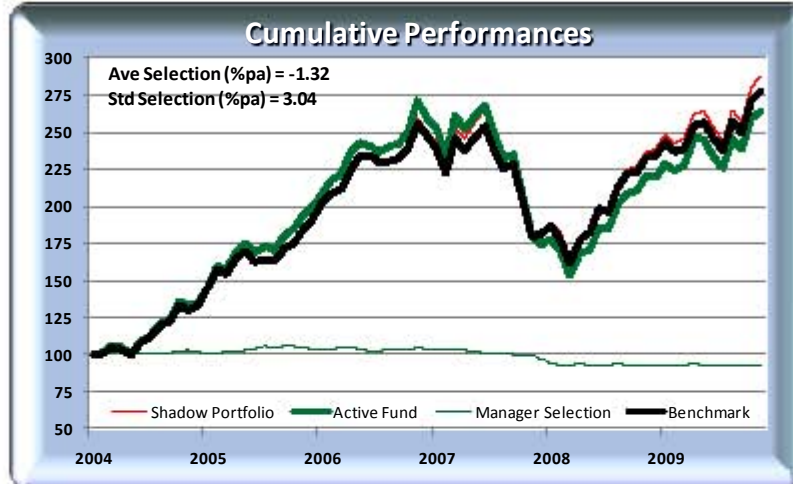
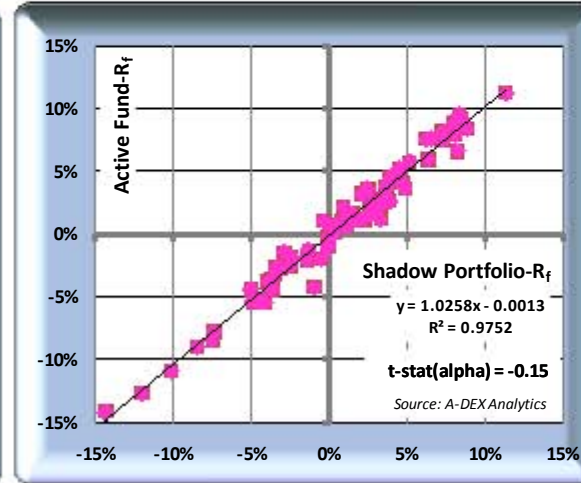
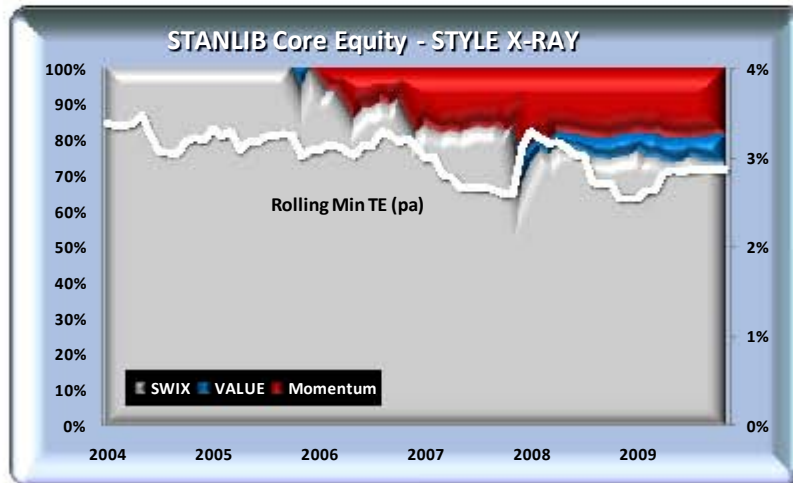
## APPENDIX A.53

### SIM Unconstrained Equity



## APPENDIX A.54

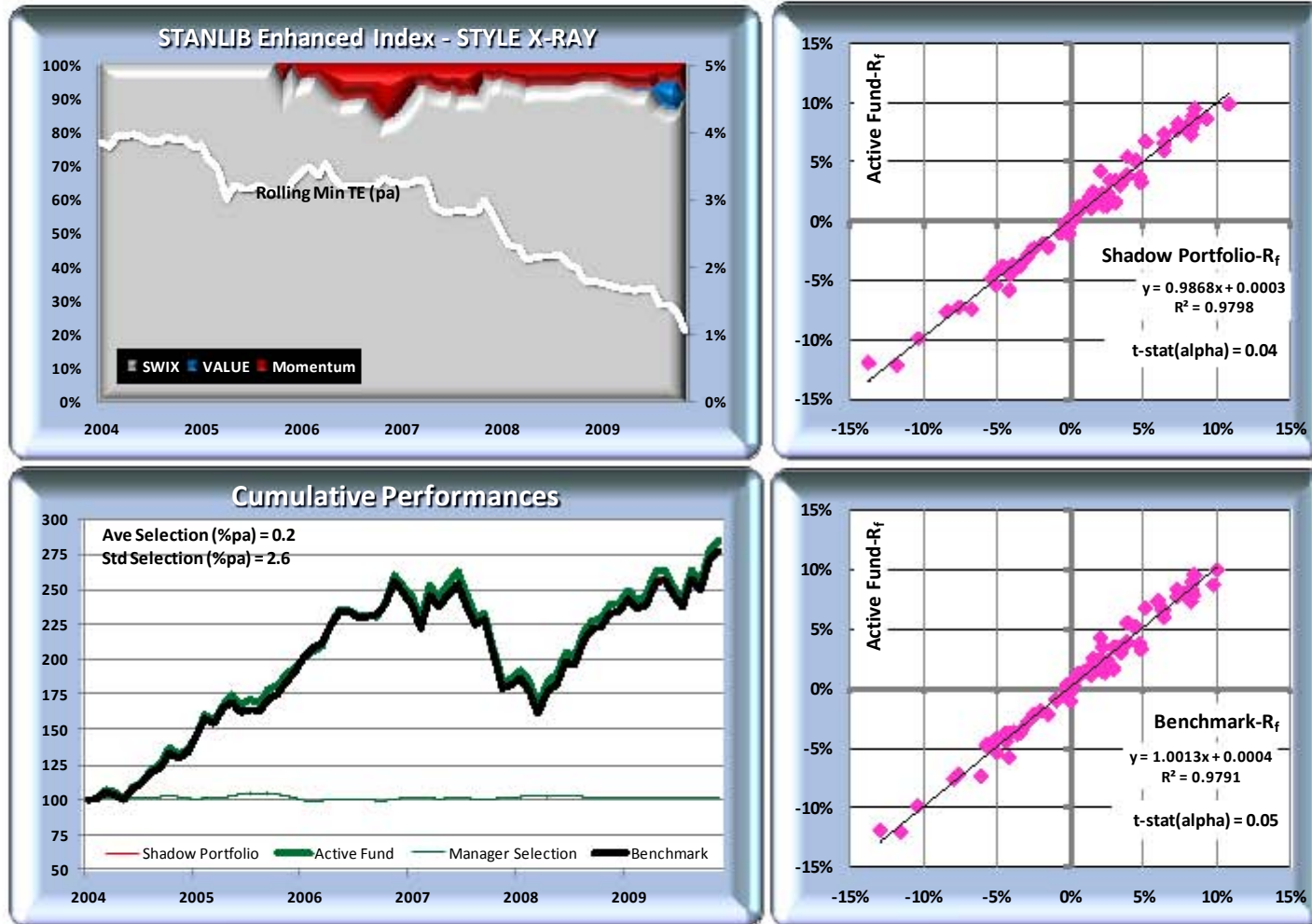
### STANLIB Core Equity





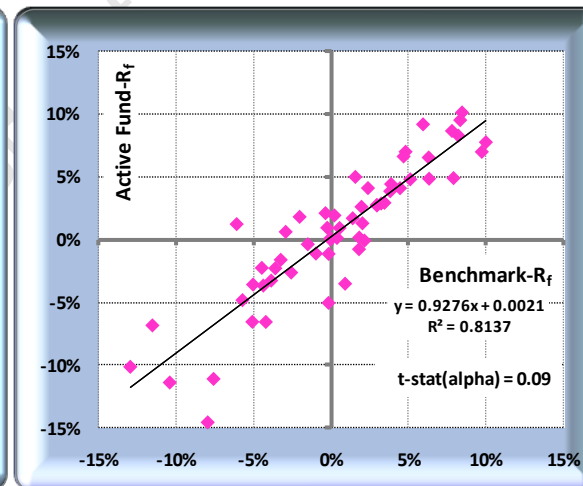
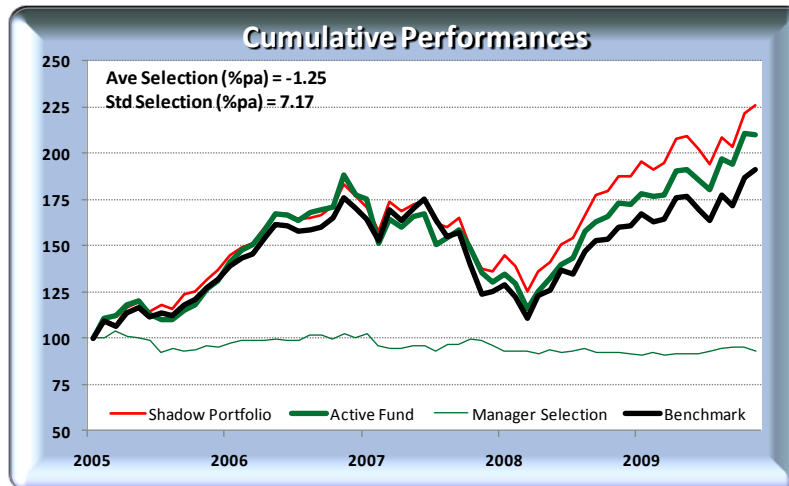
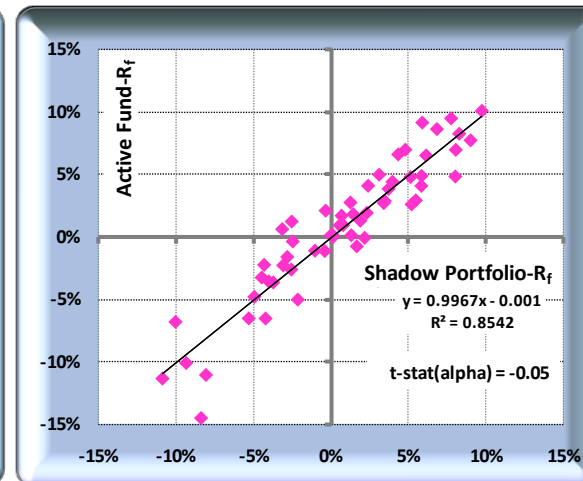
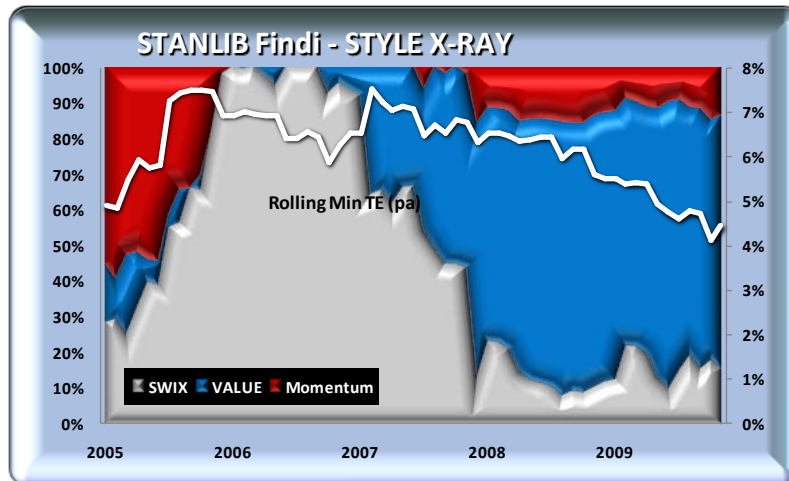
## APPENDIX A.55

### STANLIB Enhanced Index



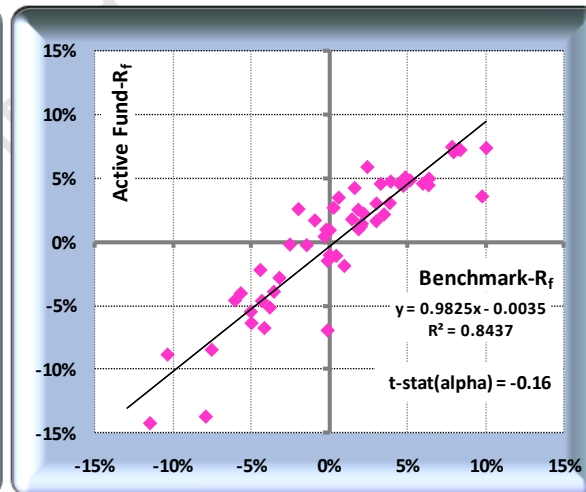
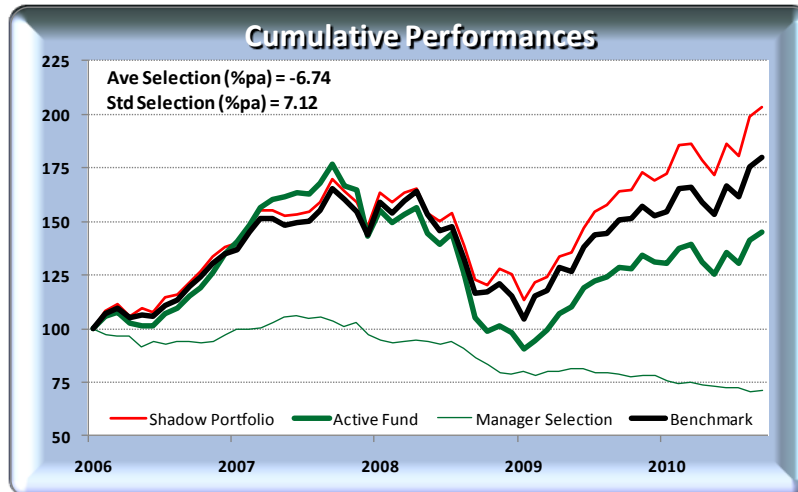
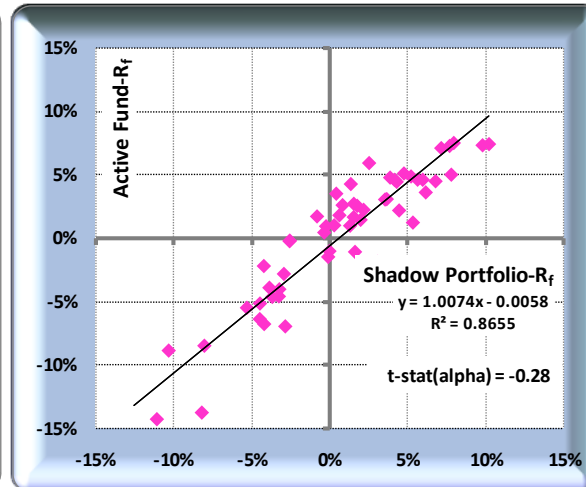
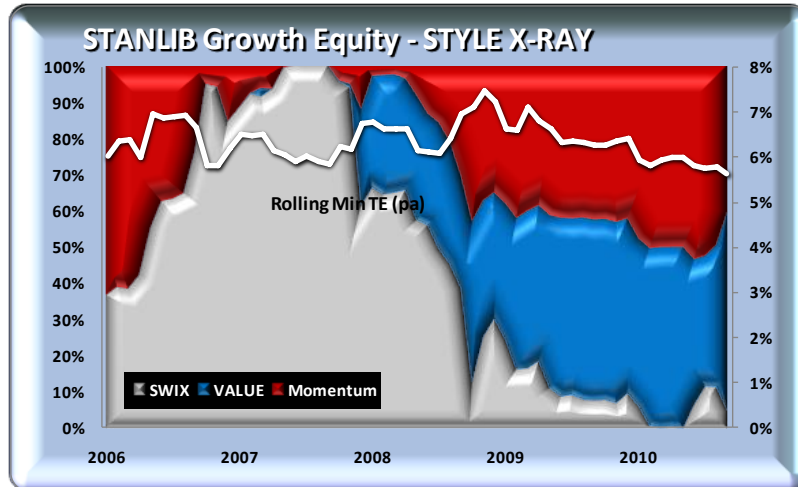
## APPENDIX A.56

### STANLIB Findi



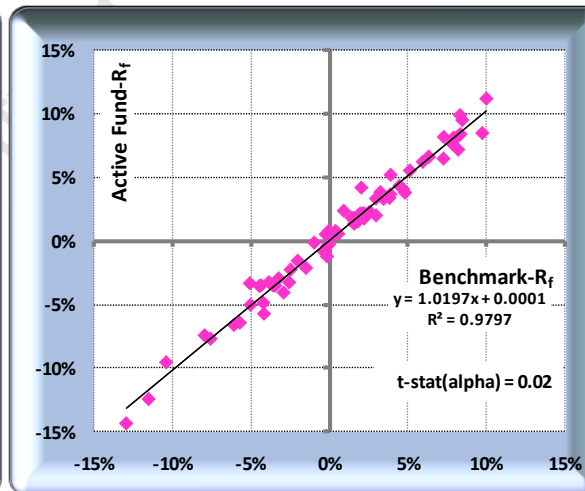
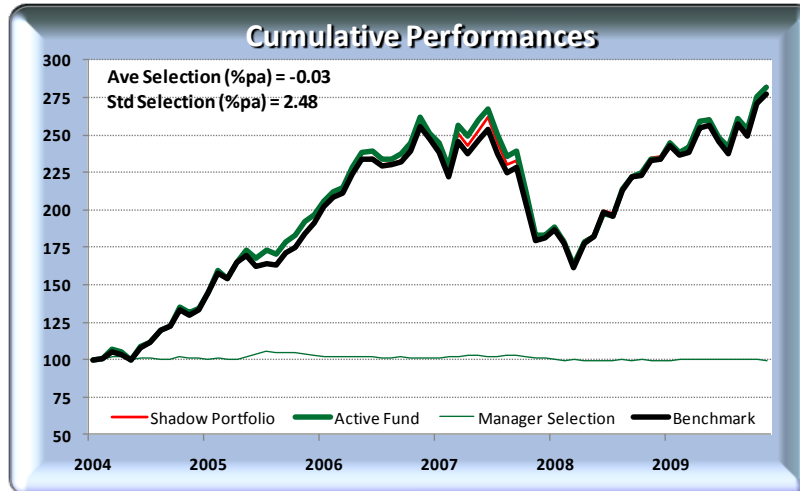
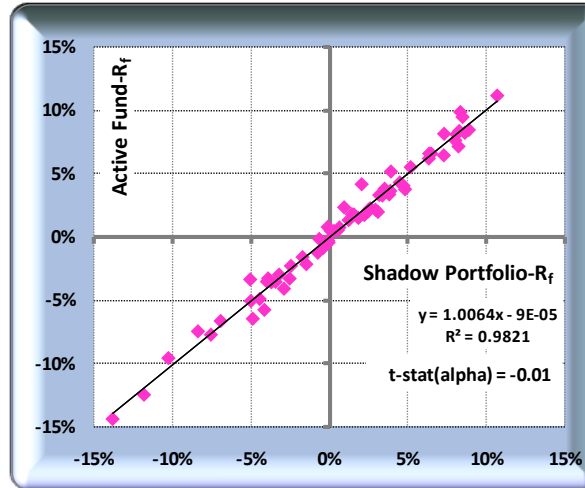
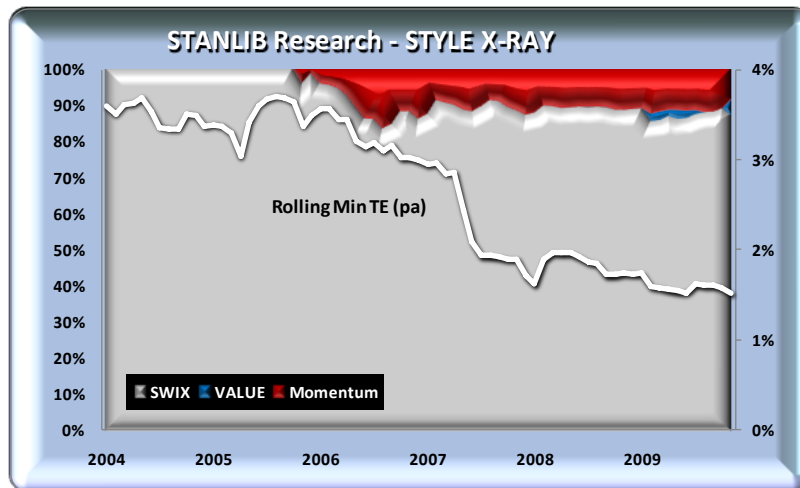
## APPENDIX A.57

### STANLIB Growth Equity



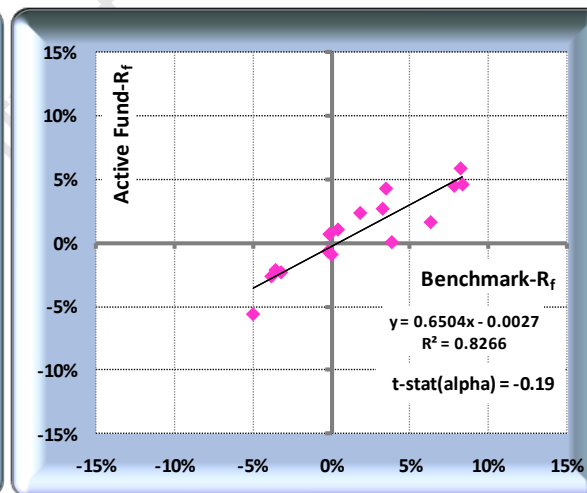
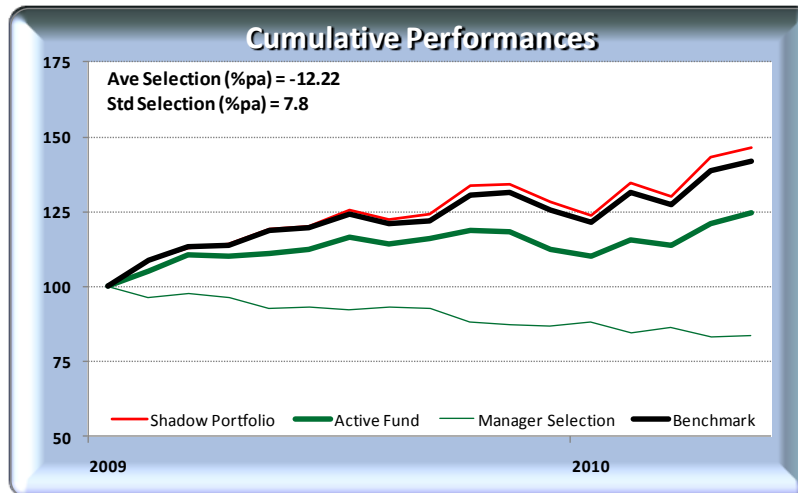
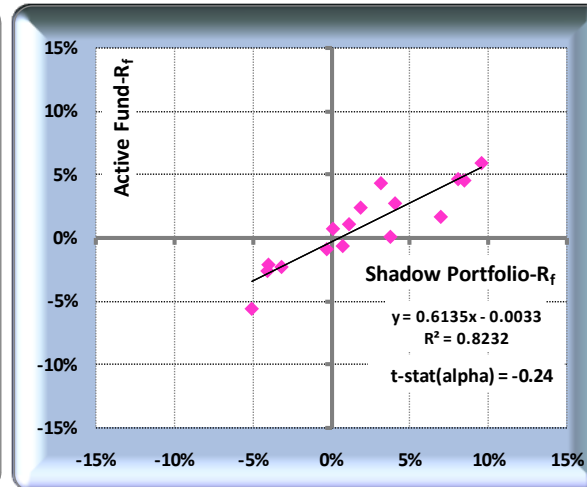
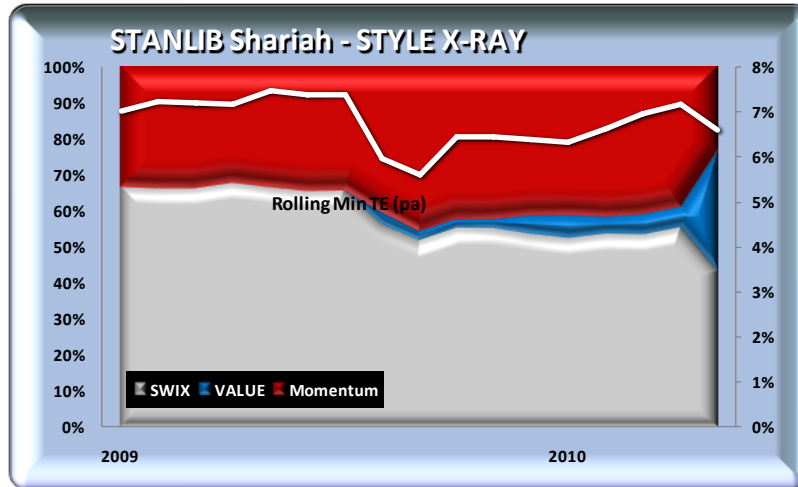
## APPENDIX A.58

### STANLIB Research



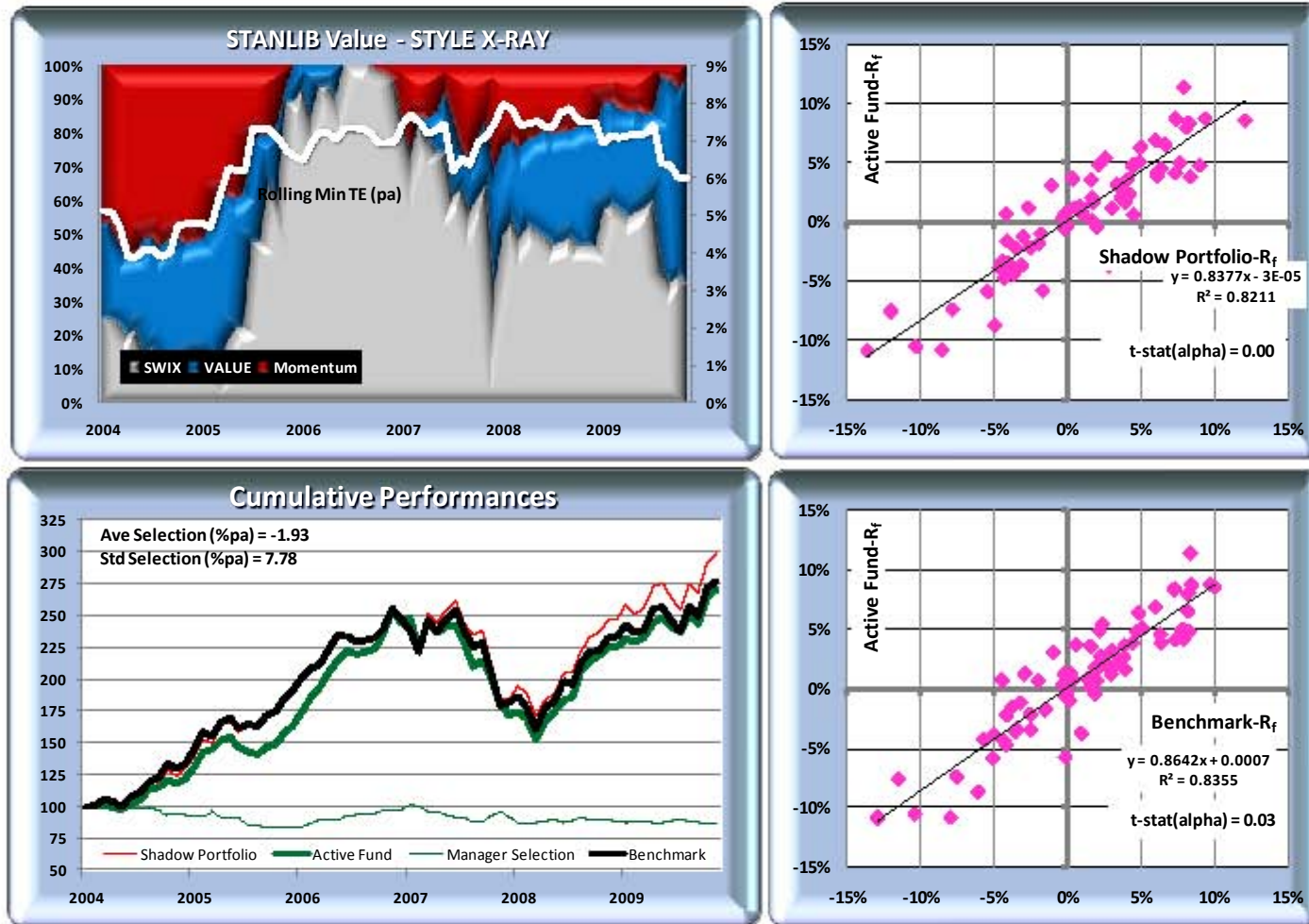
## APPENDIX A.59

### STANLIB Shariah



## APPENDIX A.60

### STANLIB Value



## 9 APPENDIX B

### Extract from Manager due Diligence Questionnaire of RisCura Solutions (Pty) Ltd

The excerpt below indicates how the above mentioned institutional funds are classified into their respective style groups. Manager's are interviewed and questioned regarding their 'style' bias. In addition to the answers indicated below, RisCura Solutions (Pty) Ltd apply an independent style assessment prior to classifying each fund as 'Value', 'Growth' or 'Core'.

### 1 INVESTMENT PHILOSOPHY AND PROCESS

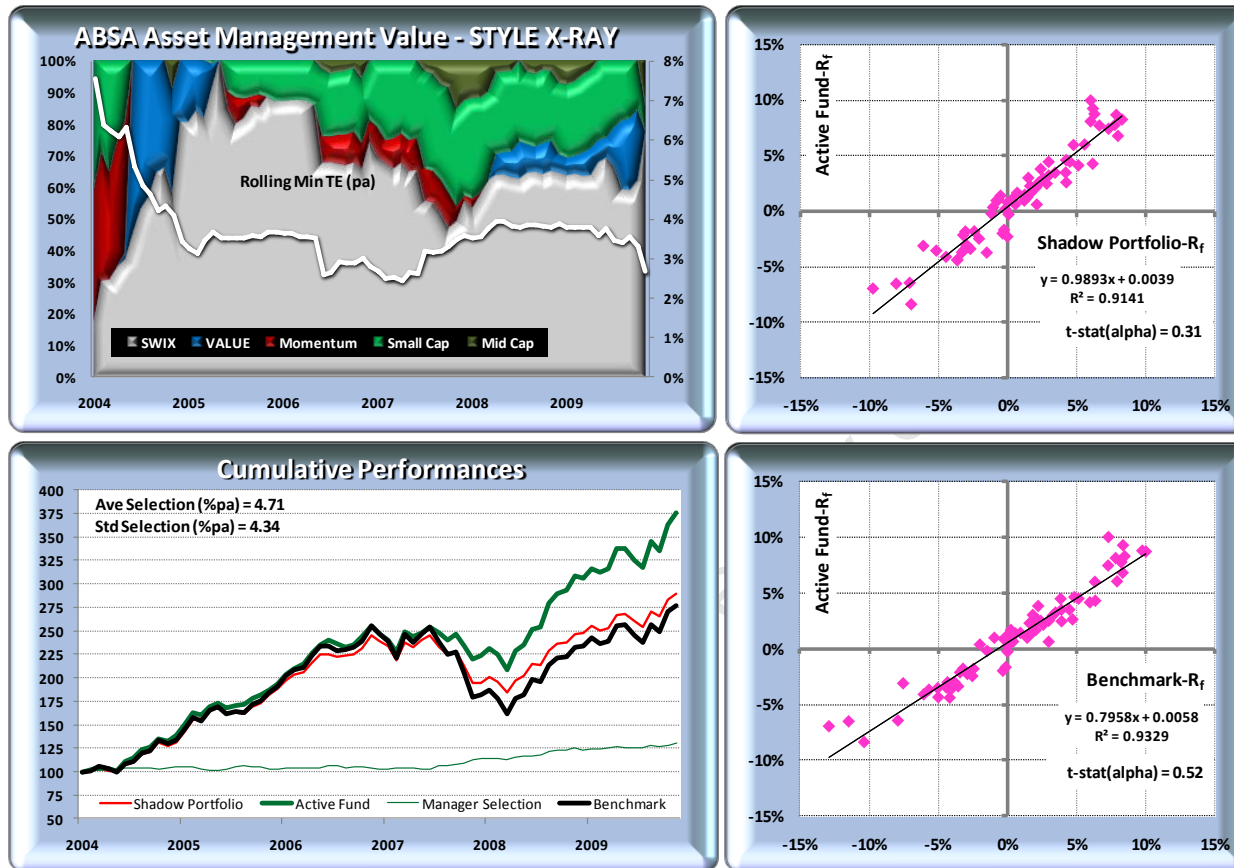
#### DESCRIBE THE INVESTMENT PHILOSOPHY USED IN MANAGING THIS PRODUCT/MANDATE:

Investment philosophy:			
Has the philosophy changed over time?		Yes	No
If yes, how?			
Style bias			
	Value	Growth	
	Neutral	Rotation	
	Contrarian	Other (please specify)	
Other			
Investment horizon:			
Market circumstances in which product may out- or underperform:			
Key drivers			

## 10 APPENDIX C

### APPENDIX C.1

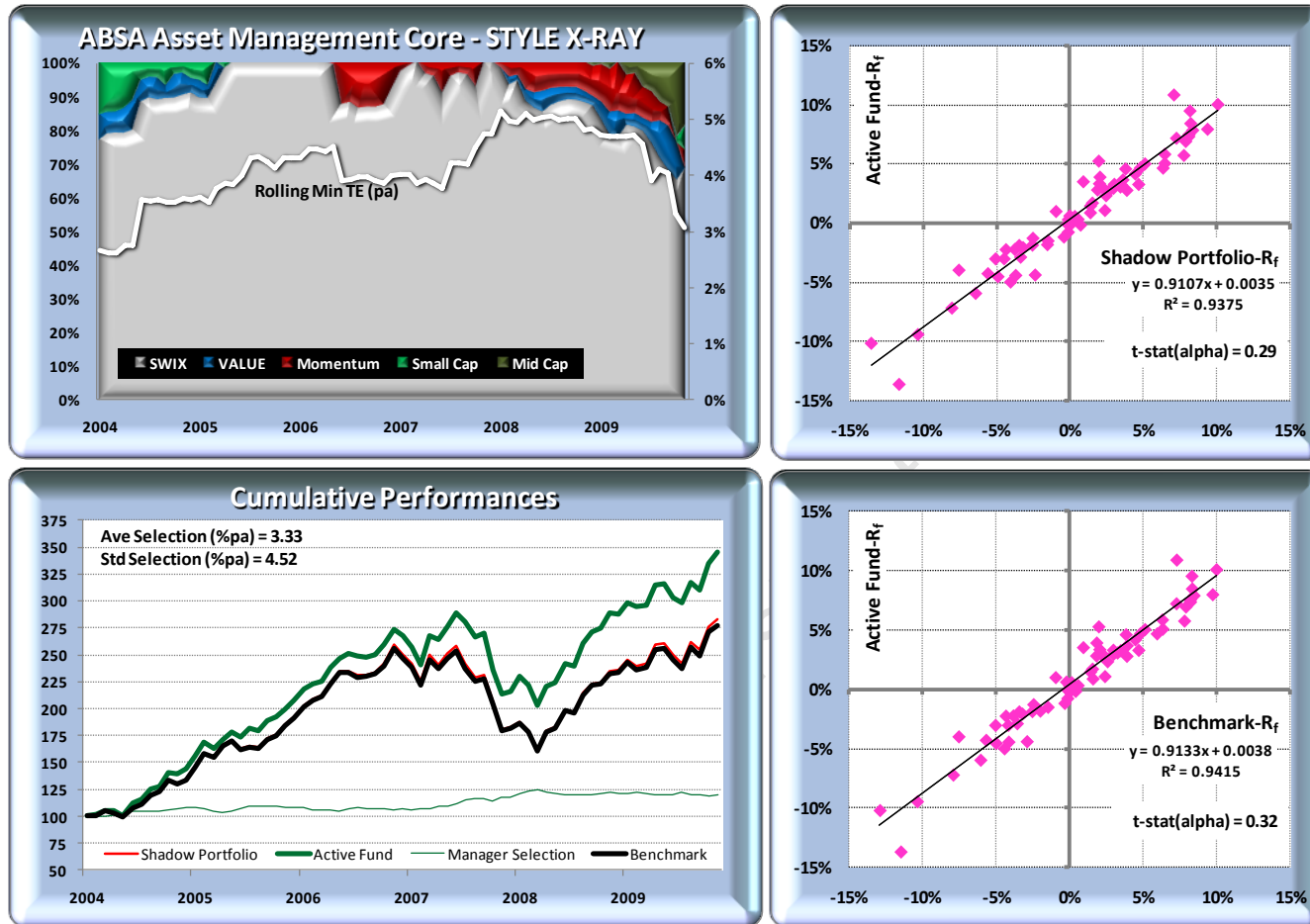
ABSA Management Value (Including FTSE/JSE Small Cap and FTSE/JSE Mid Cap indices)





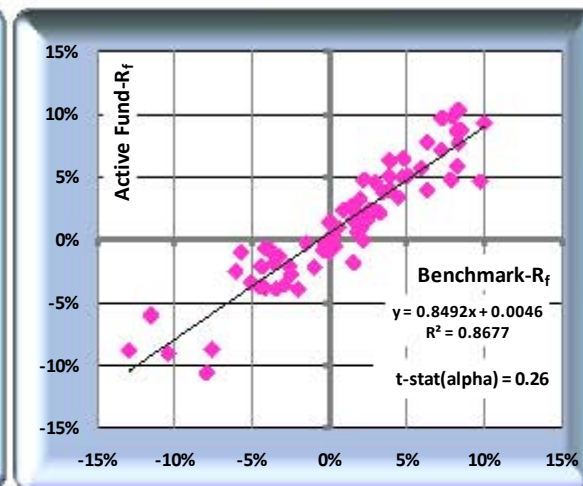
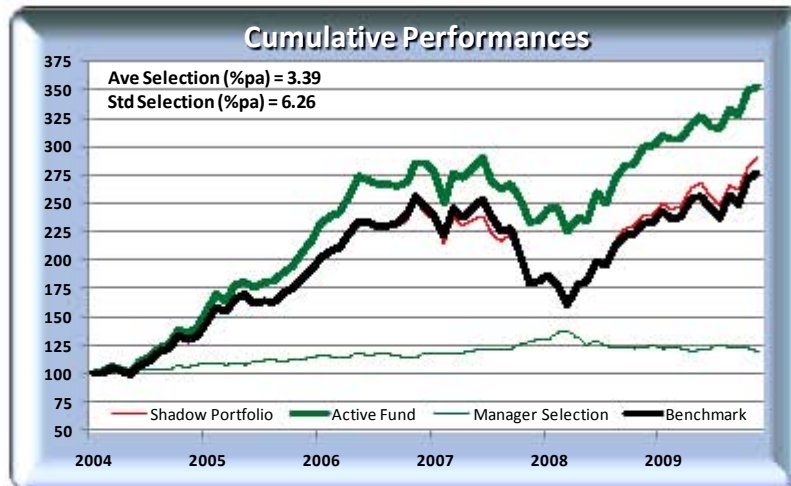
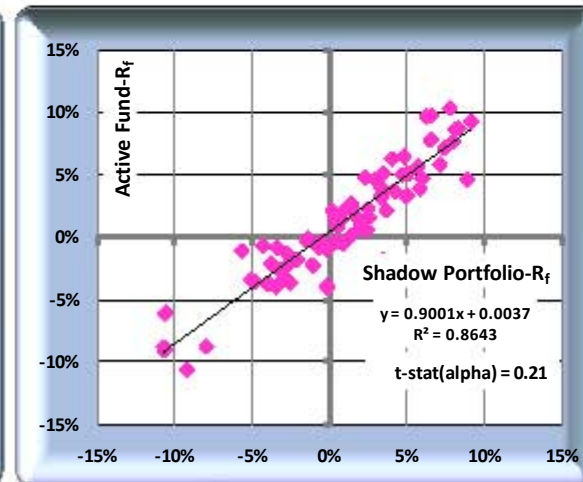
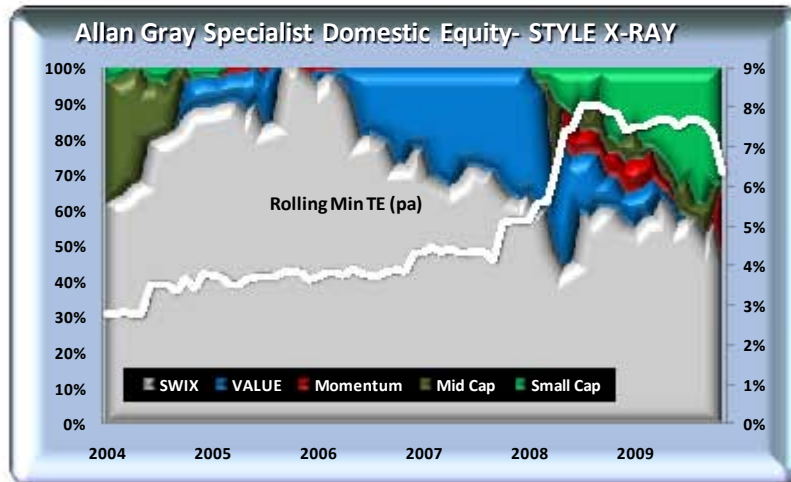
## APPENDIX C.2

### ABSA Asset Management Core (Including FTSE/JSE Small Cap and FTSE/JSE Mid Cap indices)



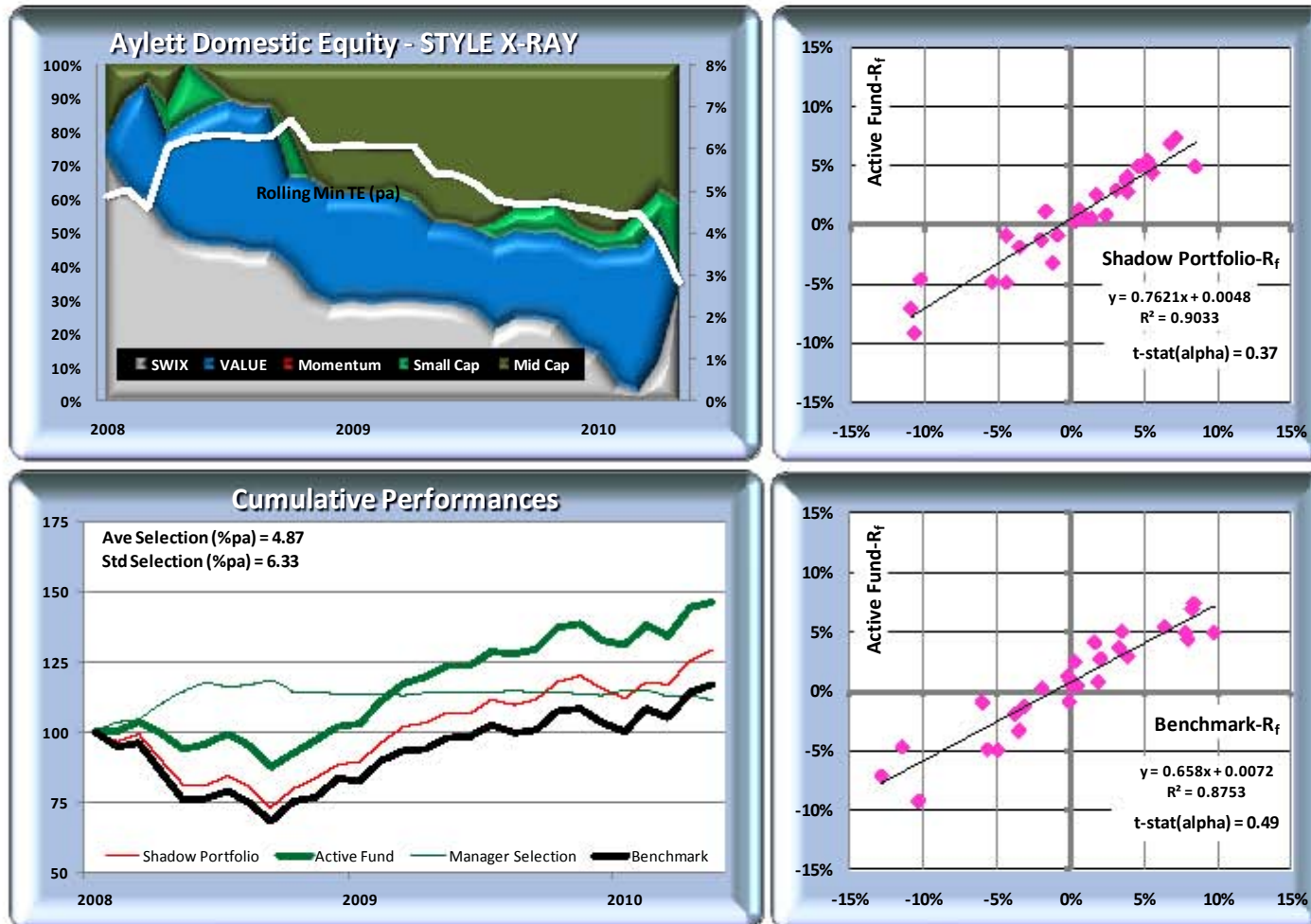
## APPENDIX C.3

### Allan Gray Domestic Specialist Equity (Including FTSE/JSE Small Cap and FTSE/JSE Mid Cap indices)



## APPENDIX C.4

### Aylett Equity (Including FTSE/JSE Small Cap and FTSE/JSE Mid Cap indices)



## APPENDIX C.5

### Coronation Houseview Equity (Including FTSE/JSE Small Cap and FTSE/JSE Mid Cap indices)

